

AD-A096 443

ARMY ENGINEER DISTRICT ROCK ISLAND IL

F/6 13/2

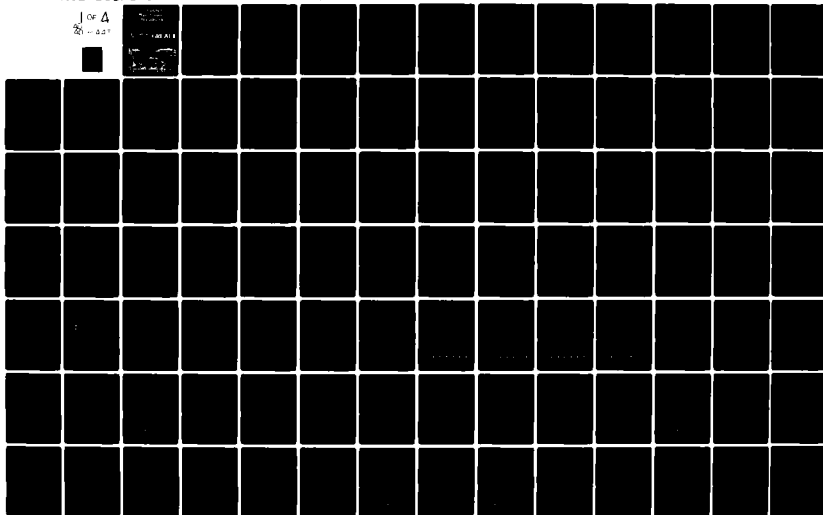
GREAT RIVER ENVIRONMENTAL ACTION TEAM (GREAT II). UPPER MISSISS--ETC(U)

DEC 80

UNCLASSIFIED

NL

J OF 4  
20 - 001



AD A 096443

# Channel Maintenance Handbook

(Supplement to Main Report)

THIS DOCUMENT IS BEST QUALITY AVAILABLE.  
A COPY FURNISHED TO DDC CONTAINED A  
SIGNIFICANT NUMBER OF PAGES WHICH DO NOT  
REPRODUCE LEGIBLY.

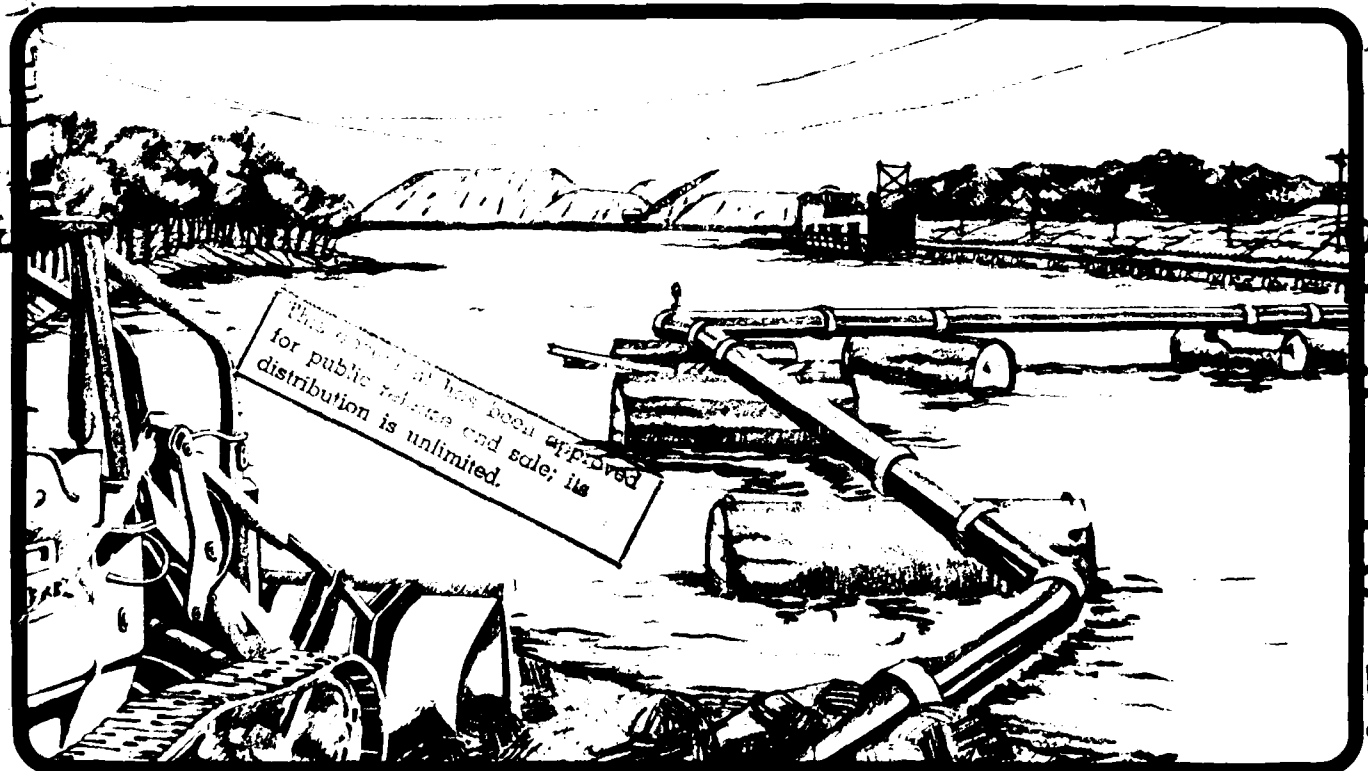
DTIC  
MAR 17 1981

DECEMBER  
1980

"Original contains color  
plates: All DTIC reproductions  
will be in black and  
white"

## GREAT II

Upper Mississippi River  
(Guttenberg, Iowa to Saverton, Missouri)



Great River Environmental Action Team

## **DISCLAIMER NOTICE**

**THIS DOCUMENT IS BEST QUALITY  
PRACTICABLE. THE COPY FURNISHED  
TO DTIC CONTAINED A SIGNIFICANT  
NUMBER OF PAGES WHICH DO NOT  
REPRODUCE LEGIBLY.**

GREAT II

CHANNEL MAINTENANCE HANDBOOK

"SUPPLEMENT TO THE GREAT II MAIN REPORT"

UPPER MISSISSIPPI RIVER  
(GUTTENBERG, IOWA TO SAVERTON, MISSOURI)

11 DEC ~~1980~~ 1980

14 E.C.

GREAT RIVER ENVIRONMENTAL ACTION TEAM

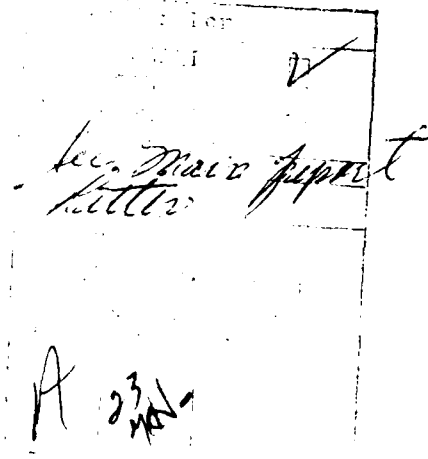
(GREAT II).

Upper Mississippi River (Guttenberg,  
Iowa to Saverton, Missouri). Channel Maintenance Handbook.  
Supplement.



## TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION - - - - -	1
CHAPTER I - HISTORY - - - - -	2
CHAPTER II - PLAN CONTENT AND OBJECTIVES - - - - -	4
A. Content - - - - -	4
B. Objectives - - - - -	5
CHAPTER III - PROCESS - - - - -	6
CHAPTER IV - DREDGED MATERIAL DISPOSAL PLAN - - - - -	7
A. Disposal Sites - - - - -	7
B. Site Selection Priorities - - - - -	7
C. Plan Implementation - - - - -	8
D. Coordination: OSIT Procedures - - - - -	9
E. Special Consideration - - - - -	11
F. Costs and Benefits of Plan - - - - -	13
G. Environmental Impacts and Site Mitigation - - - - -	14
H. RID/COE Material Transport Policy - - - - -	22
I. Emergency and Imminent Closure Procedures - - - - -	23
J. Additional Requirements - - - - -	24
CHAPTER V - LOCKS, DAMS, AND CONTROL STRUCTURES - - - - -	27
CHAPTER VI - SMALL BOAT HARBORS - - - - -	33
CHAPTER VII - PROJECT MITIGATION, <sup>ANN</sup> - - - - -	34
CHAPTER VIII - DREDGING REQUIREMENTS - - - - -	35
EXHIBIT 1 - Index to Disposal Site Numbering System - - - -	1-1 to 1-15
EXHIBIT 2 - Disposal Alternatives Matrixes - - - - -	2-1 to 2-125
EXHIBIT 3 - Base Maps Displaying Disposal Alternatives - - -	3-1 (POOLS 11-22)
EXHIBIT 4 - Pre-Disposal Evaluation Forms - - - - -	4-1 to 4-9
EXHIBIT 5 - Post-Disposal Evaluation Forms - - - - -	5-1 to 5-3



## INTRODUCTION

In 1976, the Great River Environmental Action Team (GREAT) was authorized by Congress in the Water Resources Development Act. The purpose of GREAT was to develop a total river resource management plan for the Upper Mississippi River (UMR) and in particular to resolve inter-agency disputes relative to Corps of Engineers (COE) channel maintenance activities.

The Rock Island District, Corps of Engineers (RID/COE) is responsible for maintenance of the 9-foot navigation project from Guttenberg, Iowa to Saverton, Missouri (GREAT II boundaries are identical, on the UMR, to those of the RID/COE). The navigation channel is maintained primarily by control structures such as wing dams and closing dams and by gated pool dams. This maintenance is supplemented by dredging to remove material from reaches which occasionally become too shallow for safe navigation. Maintenance dredging and disposal activities were studied by GREAT II in detail and receive the greatest attention in this plan.

The plan (supplement to the GREAT II Main Report) represents several years of effort in site selection, evaluation, and mapping and is guide for planners and others engaged in maintenance of the UMR navigation project in the RID/COE.

## CHAPTER I

### HISTORY

The present navigation system was initiated in 1930, when Congress passed the River and Harbor Act authorizing funds for its development. The channel was to be established by construction of a series of locks and dams to work in conjunction with regulatory structures and augmented by dredging. Pools were created by the construction of 27 locks and dams. Of these, 12 pools (11 - 22), are contained within the Rock Island District.

The River and Harbor Act as amended in 1930 was interpreted by the COE to mean that they were to provide for a navigation channel that would accommodate 9-foot draft vessels and was a minimum of 300 feet wide. From 1946 to 1974, the COE routinely practiced overdepth dredging and dredged to 13 feet in some areas.

One of the paramount reasons for the organization of GREAT was opposition of various agencies and states to disposal sites and dredging methods used by the COE. Critics of the COE disposal methods showed that dredged material was sometimes placed in valuable fish and wildlife habitat, areas blocking flow to such habitat, or areas where the material eroded into such habitat. Many people claimed that any disposal of the dredged material in the floodplain not only adversely impacts the aquatic fish and wildlife resources and water quality, but also affects flood heights and consequently annual flood damages.

Under threat of lawsuit initiated against the St. Paul District/COE by the State of Wisconsin in 1973, the Rock Island District/COE prepared an environmental impact statement (Upper Mississippi River 9-foot Navigation Channel; Environmental Impact Statement (EIS)) in accordance with the National Environmental Policy Act of 1969. The statement dealt with the possible effects of the operation and maintenance program on the UMR. This document revealed that current methods of channel maintenance, especially dredging and disposal, were damaging the fragile backwaters, marshes and sloughs for which the river is famous. The EIS also revealed that little information was available on the complex interactions of the rivers' resources and the resource reactions to man's activities on the river.

Beginning in the late 1960's, annual meetings were held by the RID/COE to provide personnel from natural resource agencies an opportunity to comment on dredging proposed for the upcoming year. With the advent of GREAT, an On-Site Inspection Team (OSIT) was developed to more effectively deal with site-specific dredge material problems. The intent was greater coordination of input from river biologists into the Corps of Engineers' dredged material disposal decisions. In GREAT II, the OSIT evolved one step further such that the OSIT consisted of the GREAT II Work Group Chairmen. The intent being greater coordination of input of all interest groups into the Corps of

Engineers' dredged material disposal decisions.

During the GREAT II process, the OSIT made annual recommendations to the RID/COE regarding their dredging and disposal practices. These annual recommendations and GREAT II channel maintenance recommendations were considered in the preparation of this handbook.

## CHAPTER II

### PLAN CONTENT AND OBJECTIVES

#### A. CONTENT

RID/COE channel maintenance activities primarily include the operation and repair of the locks and dams, the repair and/or construction of channel control structures and the dredging and disposal of materials from the main channel and small boat harbors. A complete channel maintenance plan would address, in detail, all of these channel maintenance activities. Due to time and funding constraints, and the high priority placed on dredging related activities, the channel maintenance plan presented herein focuses mainly on dredging and the placement of dredged material.

The river is a dynamic, changing resource. Plans laid out by the GREAT II Team recognize that the environment is responding to both natural and man-induced actions placed on it or affecting it. Future management efforts, including channel maintenance practices, must evaluate the changing environment and new technological information as it becomes available so that management plans can change consistent with the needs of the resource and its opportunities.

The GREAT II study has initiated an interagency cooperation concept, whereby multimanagement interests have been considered in the formulation of GREAT's river management plans. From a channel maintenance perspective, this has included an on-site inspection process to evaluate RID/COE dredging activities. This cooperation must continue. The plans for channel maintenance presented in this handbook are intended as a guide for resource managers to follow as they continue their efforts to protect and enhance the river's values from all points of view. It is important that long-term plans such as those presented in this report retain an element of flexibility to meet a changing river and an increasing knowledge of its characteristics.

However, the flexibility must not lose sight of the concerns and objectives by which this plan was formulated--that is an environmentally and economically sound program of channel maintenance.

The components of this plan<sup>1</sup> consist of:

1. A Dredged Material Disposal Plan: This plan includes recommendations to RID/COE regarding site selection, site acquisition,

<sup>1</sup> The components as presented in this report are not fully developed as plans and should not be considered as such.

site preparation, site mitigation/implementation procedures, need for equipment capability, and analysis and environmental impacts of site usage. Maps, priorities used in site selection and conditions for use of the site are also included. Special procedures are outlined for the OSIT and for both imminent closure and emergency dredging situations. Future study needs to complete the plan, have been identified.

2. Suggested Mitigation Measures for Past Disposal: These measures include the studies required and the sites suggested for mitigation.

3. A Program for Maintenance of Channel Control Structures: This program outlines the development and responsibilities of a Committee for Assessment of Regulatory Structures (CARS).

4. Suggested guidelines and procedures for dredging of small boat harbors.

5. Operation of the locks and dams especially as it relates to pool level fluctuations.

## B. OBJECTIVES

The overall objective of this plan is to ensure that channel maintenance activities are carried out in an environmentally acceptable manner while ensuring the integrity and safety of the 9-foot channel. Specifically, the plan is meant to reduce impacts resulting from disposal of dredged material. Six sub-objectives were developed to further define the goal of reducing dredge disposal impacts. These were:

1. To provide for continued and practical maintenance dredging to ensure a safe 9-foot navigation channel on the UMR.

2. To safeguard fish and wildlife resources, including wetland habitat and backwaters of the river from the detrimental effects of dredged material placement.

3. To protect the quality of water in the river from the adverse effects of dredged material placement.

4. To avoid increasing flood stages and encroachment on the floodplain.

5. To provide for continued recreational use of the river.

6. To establish a beneficial use market for dredged material, and to make this material available to these uses.

## CHAPTER III

### PROCESS

Federal regulations and Congress require that certain principles and standards be followed in planning for water and related land resources. In Section 103 of the Water Resources Planning Act (Public Law 89-90), the Water Resources Council was charged with developing "Principles and Standards for Planning Water and Related Land Resources". The "Principles and Standards" were established and published in the Federal Register on 10 September 1973. The purposes of "Principles and Standards" are to:

1. "...provide the broad policy framework for planning activities and include the conceptual basis for planning."
2. "...provide for uniformity and consistency in comparing, measuring, and judging beneficial and adverse effects of alternative plans."
3. "...provide more detailed methods for carrying out the various levels of planning activities; including the selection of objectives, the measurement of beneficial and adverse effects, and the comparison of alternative plans for action."

The recommendations and plans contained in this handbook were developed in accordance with "Principles and Standards" and other applicable regulations during the GREAT II study process. The GREAT II study process and the disposal site selection process are described in detail in the GREAT II Plan Formulation Technical Appendix and Addendum.

## CHAPTER IV

### DREDGED MATERIAL DISPOSAL PLAN

#### A. DISPOSAL SITES

Sites to be used in the disposal of dredged material in the Rock Island District are listed in Exhibit 1 and displayed on base maps in Exhibit 3. The conditions for site use and all other available data regarding the sites are displayed in the "Disposal Site Alternatives Matrixes" (Exhibit 2).

The sites displayed on the maps are either primary sites or alternative sites. Primary sites have been identified by the GREAT II Team as the preferred disposal site of all alternatives considered. One of the long range goals of the Channel Maintenance Plan is to utilize the primary sites.

#### B. SITE SELECTION PRIORITIES

The following site prerequisites, listed in order of priority, were used to select the primary sites. These priorities may be altered when demonstration projects recommended by GREAT II (see Page 24) have been completed and results justify revised priorities.

1. Material at site has a beneficial use which will cause it to be completely removed from the riverine environment and which will have little or no adverse environmental impact.
2. Site has beneficial use potential that will have little or no adverse environmental impact.
3. Site is an OSIT approved beach.
4. Lowland hardwood sites previously used for disposal.
5. Agricultural land sites, other than prime.
6. Pioneer vegetation (mix of herbaceous and woody vegetation usually found adjacent to levees in the study area).
7. Lowland hardwood sites not previously used for disposal.
8. Shoreline sites not previously used for disposal.
9. Open water sites.
10. Prime agricultural lands
11. Wetlands



The following considerations were used in conjunction with the above priorities and should be used in site selection.

1. Avoidance of environmental damage is a primary factor in dredged material disposal site selection.
2. Possible benefits to recreation or other interests are important but secondary considerations.
3. Possible environmental enhancement or creation of habitat are considered if there is sufficient technical capability and information on possible side effects.
4. Elimination of unwanted disposal of dredged material on all fish and wildlife refuge management areas except for where alternate disposal sites are more environmentally damaging as determined by the appropriate fish and wildlife management agency.

### C. PLAN IMPLEMENTATION

The COE should:

1. Prepare a preliminary disposal site plan in coordination with OSIT for each of the primary sites within 5 years. The site plan should include the mitigation requirements developed by the FWIC. The ORRMT should approve all site plans.
2. Conduct reconnaissance surveys for cultural resources.
3. Obtain all necessary permits prior to disposal.
4. Obtain approval from the Heritage Conservation and Recreation Service (HCRS) prior to disposal on areas funded for recreation by the Land and Water Conservation Fund (LAWCON).
5. Utilize water quality assessment techniques developed by GREAT II to predict and verify impacts of dredging (see Water Quality Work Group Appendix).
6. Place material found to be polluted in confined upland disposal sites or apply treatment to neutralize the pollutant.
7. Conduct advance site preparation following site-specific parameters to be determined by the On-Site Inspection Team (OSIT).
8. Minimize water quality impacts of return flows.
9. Monitor all sites to document the impacts on fish and wildlife resources (including photographic record).
10. Initiate a program to acquire acceptable disposal sites/rights at the earliest possible date.

## D. COORDINATION: OSIT PROCEDURES

### 1. Participation

The procedures contained in this section describe the OSIT procedures to be used in the future. They are to provide for notification and coordination of the Mississippi River channel maintenance projects beginning with the 1981 dredging season. The guidelines are consistent with the recommendations of GREAT II. It is understood that the COE will obtain necessary permits from State and Federal regulatory agencies.

The representation of the agencies on the OSIT will change from the approach used during the term of GREAT. Each Federal agency and state on the OSIT will have one primary representative for the entire Rock Island District.

These Federal agencies and states are suggested based on past participation in the GREAT II on-site inspection process, vested interest in Corps activities, and regulatory functions governing material placement. Other agencies, local governments and the general public, have interests and concerns in channel maintenance operations. These interests will be coordinated with as necessary and invited to join in active participation on the OSIT.

Therefore, OSIT voting membership should include a representative of:

- a. State of Illinois
- b. State of Iowa
- c. State of Missouri
- d. State of Wisconsin
- e. U.S. Army Corps of Engineers
- f. U.S. Fish and Wildlife Service
- g. U.S. Environmental Protection Agency
- h. U.S. Department of Transportation
- i. U.S. Soil Conservation Service

The OSIT will be chaired by the U.S. Fish and Wildlife Service.

Participating agencies should notify the OSIT chairman by April 15 of each year of any changes in their primary and alternative representatives.

A secondary agency contact should also be designated at this time. In addition, these representatives may call on local agency staff to provide specific knowledge of an area, but the primary representative will be responsible for coordinating and representing all state interests and will represent the final policy for his or her agency.

## 2. Function

The On-Site Inspection Team's function will be to provide input and guidance to the Rock Island District for making dredging and dredged material placement decisions. The OSIT will determine and recommend how to best implement the GREAT II dredged material placement plan for any given dredge cut. The OSIT chairman will present the final OSIT dredging disposal recommendation to the District for a final decision through the pre-disposal evaluation form as shown in Exhibit 4.

It is anticipated that visits to the disposal areas will be required for most dredging operations and attendance is a prerequisite for voting. At the discretion of the chairman, a telephone vote or meeting elsewhere than the disposal site might effect the necessary recommendation. Unanimous approval by voting members present is required to forward a recommendation to the COE. If, consensus is not reached a majority recommendation and minority report will be forwarded to the COE.

Since the established policy for the Rock Island Engineers District is to use the GREAT II primary sites whenever possible, the OSIT will have to have strong rationale and vote by consensus for recommending the use of new or alternative sites. The procedures and priorities outlined in Section IV.B. above must be used by the OSIT in the selection of any new sites, and site preparation and mitigation recommendations should be in accordance with Section IV.C. and D. above and Section IV.E. and G. below.

The chairman and the COE representatives are responsible for making available to the OSIT all information relative to past dredging and disposal at the site and past rationale for selecting or rejecting various disposal sites. The COE is responsible for providing technical data relative to the current operation such as hydrographic surveys, quantity estimates, and dredging schedules. The COE should also explain the hydrographic and morphologic situation at each dredge cut and should discuss any remedial measures such as wing dam repair which are underway or contemplated. The chairman will notify the OSIT as soon as a dredging requirement becomes apparent and will arrange the necessary OSIT meeting.

If during the dredging operation, it is necessary to violate a recommendation of the OSIT, the COE representative will immediately notify the OSIT chairman. The chairman will then determine if a reevaluation by the OSIT is necessary and will act appropriately. If the COE fails to follow the recommendations of the OSIT for reasons not satisfactory to the majority of the voting members, it is the responsibility of the chairman to report the incident to the District Engineer.

### 3. Evaluation

The OSIT chairman will also be responsible for completing the post-disposal evaluation forms (Exhibit 5) and for preparing an evaluation of each year's dredging season. This evaluation, with the concurrence of the OSIT will represent the OSIT's perception of the COE's efforts to achieve the Dredged Material Disposal Plan. The evaluations may further contain recommendations to modify the DMDP or the COE's methods of accomplishing the DMDP. The chairman will be responsible for coordinating the development of the annual evaluation, having January 15 as the deadline for completing and distributing the document. The evaluation will be provided to the (see Recommendation 53 in the Main Report) ORRMT for appropriate action.

## E. SPECIAL CONSIDERATIONS

### 1. Containment and Confinement

The definition of Contained is: The use of temporary dikes or earth works to control material and return water during dredging.

The definition of Confined is: Permanent removal of dredged material from the riverine environment by enclosure in impermeable structures.

Where OSIT determines that containment or confinement is necessary, the following guidelines should be followed:

- a. The initial height and dimensions of the containment structure should be based on site-specific criteria but generally should not exceed 6 feet in height in lowland hardwood areas. Stockpile sites should be large enough to contain disposal from two dredging occurrences.
- b. Disposal areas will be stabilized through the planting of a vegetative cover when feasible rather than rip-rap.
- c. Water flowing from the disposal sites will be controlled in order to reduce turbidity and the effects of uncontrolled discharge on surrounding lands.
- d. Containment structures should provide adequate buffer zones to protect wetlands.

### 2. Recreation Beach Sites

Disposal sites that are GREAT approved beach areas are to be maintained according to the following beach nourishment guidelines. Only new beach sites identified in approved recreation management plans as required by Recommendation 16 will be created.

#### a. General Maintenance

- 1) Existing sites should be developed to their maximum desirable dredged material carrying capacity before establishing new sites in the same area. The carrying capacity is

reached when the site cannot be expanded without great environmental degradation or loss of recreational value.

2) Maintain existing sand areas and good sand beaches utilizing revegetation patterns that occur in the swales between sand mounds.

b. Site Location

1) New sites should be located adjacent to the water in areas where recreational use will not interfere with main channel traffic or where vessel waves are liable to create hazardous conditions for swimmers or boaters. Avoid site locations that have deep water (20') adjacent to the sites as these sites are a danger to swimmers. Underwater slopes should be ten percent or less for at least 50 feet off-shore for swimming safety.

2) New sites with shallow underwater obstructions such as submerged wing dams or stump fields should be avoided.

3) Sites should visually fit into their surroundings to the greatest extent possible.

4) Sites should not be located on the downstream end of small islands.

5) Sites should be located at least 400 feet from the channel centerline to reduce the effect of wave action erosion.

c. Site Shaping

1) Large sand piles that tower above the existing topography should be avoided. The dredged material should be contoured to complement existing land forms.

2) Topographic variety (mounds and depressions) should be built into sites during the dredging operation through disposal pipe placement.

3) Beach slopes should be ten percent or less for at least 50 feet inland from the waterline.

d. Site Vegetation

1) Prevent vegetation from taking over more than 50 percent of the site through the following measures:

- Sand should be piled deep enough during the dredging operation to inhibit rapid revegetation of the site.
- Sites should have an aspect of south to west to take advantage of the sun for reducing the moisture content of the upper sand layer and thus slow the revegetation rate.

- 2) Some overstory vegetation on a potential site is highly desirable and should be preserved where existing. This vegetation helps slow erosion and helps maintain several desirable recreational characteristics.
- 3) Deposit a shallow layer of sand under a portion of overstory vegetation to eliminate woods nettles (where necessary).
- 4) Do not allow dredged material in existing overstory vegetation to be more than 6 feet during the disposal operation.
- 5) Maintain good access to any overstory woods surrounding the sites.
- 6) Keep sandbar willow growths on the site to a minimum. If these growths are located between the site and the overstory woods, portions of them should be removed during preparation for dredged material disposal.
- 7) Vegetation patterns should not break up the beach frontal area. The beach front should be one continuous sand strip joining the smaller sand spaces.

3. Other

- a. Stockpile sites will be cleared as necessary.
- b. Dredged material will not be used to increase the height of the levees and will not be used to increase the integrity of emergency levees, subsequent to the flooding emergency.
- c. Disposal sites should not be in a high-velocity floodway.

## F. COSTS AND BENEFITS OF PLAN

As new information becomes available, it will be possible to determine the costs and to measure the impacts of various alternatives to past and present dredging procedures, but this is not presently possible.

RID/COE will analyze the costs of various channel maintenance methods upon completion of the demonstration projects outlined in Section IV.J.

The site selection priorities were arrived at after debate and compromise and appear to be the optimum trade-off between cost and environmental protection, however, no economic evidence, other than the judgment of the GREAT II participants, can be offered to prove that the selected sites are actually preferable to the alternatives rejected.

## G. ENVIRONMENTAL IMPACTS AND SITE MITIGATION

Over 750 disposal sites were reviewed by the GREAT II Team (Exhibit 2). To assist in evaluation of sites and establishment of priorities, the FWMWG completed a habitat evaluation of habitats impacted<sup>1</sup>. Using this information, the work group assessed each of the planning alternatives developed by the PFWG and the GREAT II Team. The methods of this evaluation and data on the other alternatives can be found in the FWMWG Appendix.

The first phase of the assessment was to identify the habitat types impacted and to determine the relative value of each habitat type. The habitat evaluation is based on a quantitative method of assessing the capability of a habitat type to provide life needs for a number of wild-life species found in the project area. Theoretically, a value of 100 habitat units (HU) would be ideal habitat for all species evaluated. However, this is impossible since no one habitat provides all life requirements for all species evaluated. The habitat types and the average values determined by the FWMWG are:

	<u>Existing HU per Acre</u>
1. Wetlands (all types except forested wetlands)	44.7
2. Lowland hardwoods (all forested wetlands)	31.3
3. Agricultural field (all areas being actively farmed including plowed fields)	26.0
4. Levee (levees and areas adjacent to levees usually consisting of grasses, vines, forbs, shrubs, and a few trees)	24.0
5. Old field (includes fields not in cultivation, pastures and all other areas that do not fit into one of the other habitat types)	16.0
6. Aquatic (evaluated waterfowl use only, includes all open water habitats except wetlands)	11.3
7. Mowed grass (grass mowed more than once a year)	10.0
8. Breached levee (evaluates restoration of levee for wildlife management)	10.0
9. Dredged material (includes all non-vegetated sandy areas)	6.6
10. Developed (includes all areas which are highly disturbed by man's activities)	4.9

<sup>1</sup> This habitat evaluation assesses the impacts of the Dredged Material Disposal Plan only and does not address the other recommendations in this Handbook.

These HU values were used in establishing the site selection priorities. However, it should be noted that the evaluation assesses terrestrial impacts only, since the ultimate disposition of dredged material in aquatic habitats is unknown. Degradation of aquatic habitat is known. A review of fishery sampling data has indicated a significant decrease in species and numbers at dredged material disposal sites adjacent to the main channel border (MCB) when compared to sampling sites in the MCB that have not been impacted by disposal. At this time there is no method to quantify this loss or the losses in other aquatic habitat types. The recommended (Recommendation 8) future research on tracking of dredged material in the river will aid in completion of the total environmental assessment for the Dredged Material Disposal Plan.

The second phase of the assessment was to ensure that an acceptable alternative disposal plan had been chosen by the Team and to determine the extent of mitigation required to minimize impacts. The habitat evaluation compares existing HU to an average annual HU. The average annual HU value takes into consideration a 50 year period of evaluation, the size of the site, the impacts of disposal, and the frequency of disposal. Exhibit 2 contains the habitat losses or gains at each primary site in addition to the size of the site. One primary site was chosen to be assessed for each dredge cut. Since frequency of disposal and aquatic impacts are unknown at beach nourishment sites, these sites were not evaluated.

Table 1 summarizes the results of the habitat evaluation for the Primary Sites approved by the GREAT II Team. The acreage of these sites assumes the estimated 50 year volume of material from the closest cut will be placed at the site. For lowland hardwoods and dredged material habitats depths should not exceed 6 feet. All other sites are to be filled to 12 feet.

Table 2 summarizes the habitat evaluation for Primary Sites "with stockpiling". Stockpile sites are those Primary Sites that DMUWG identified as recommended disposal sites to satisfy productive use requests. This is approximately 69% of the total 50 year dredging volume. (Note: DMUWG has projected 100% of the 50 year volume can be put in productive use.) Disposal is to 12 feet at these sites. The site acreage is large enough to contain two dredging occurrences. All other sites are evaluated the same as the "without stockpiling" option.

An evaluation of the summary tables show:

1. "Without stockpiling" the greatest percent loss in habitat value occur in agricultural field, old field, and developed habitats.
2. "With stockpiling" the greatest percent loss in existing habitat value occurs in levee and old field habitats.
3. "With stockpiling" there is 56% reduction in HUs lost over the "without stockpiling" option. However, the percent of HU loss of existing habitat value is approximately the same under either alternative (32%). This is due primarily to a reduction in the acreage required for disposal (Table 3).



4. Stockpiling substantially (greater than 50%) reduces HU losses in Pools 11, 12, 13, 18, 19 and 20.
5. The greatest loss in HUs is in Pool 20.
6. The greatest loss in HUs is in lowland hardwoods habitat.
7. The breeched levee habitat gains habitat units due to the creation of terrestrial habitat from aquatic habitat. This does not consider aquatic habitat losses or the secondary gain in habitat value from improved wildlife management.

As shown in the Environmental Summary Report (Supplement 1), the Primary Site Disposal Plan with stockpiling offers the most environmentally acceptable mix of dredged material disposal sites. However, this plan is not without habitat degradation as 2752 terrestrial HUs are still lost and will require mitigation. Since the extent of aquatic degradation is unknown, no mitigation measures have been identified for aquatic habitat losses.

Mitigation as defined by the President's Council on Environmental Quality and supported by the USFWS is that planning process which 1) avoids impacts altogether by not taking a certain action or parts of an action, 2) minimizing impacts by limiting the degree or magnitude of the action and its implementation, 3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, and 4) reducing or eliminating the impacts over time by replacing or providing substitute resources or environments (40 CFR 1508.20 a-e).

Historically, dredged material has been deposited in areas closest to the dredge site and allowed to revegetate by natural succession. The height and depth of the deposit has influenced the degree of loss of existing vegetation as well as subsequent vegetation capable of pioneering the site.

It is generally accepted that most dredge disposal causes habitat losses to varying degrees as shown above. For wildlife habitat, this is inherent in the fact that dredged material has the second lowest habitat value per acre (the lowest is developed areas) of all the wildlife habitats evaluated by the FWMWG. As stated before, the impacts on aquatic species habitat are unknown.

Excessive disposal at any site can void the area of vegetation and lower its wildlife value. Lesser deposits destroy understory and are subject to erosion. However, in some cases, limited disposal at a site can lessen habitat losses by creating nesting cavities from the few trees that are killed by the disposal. This was taken into consideration in the habitat evaluation. Secondary impacts also occur such as beach disposal that induces recreation into a site. The increased activity results in disturbance of habitat. For this evaluation, secondary impacts have not been evaluated. However, they will be considered in development of the mitigation plan.

The objectives of dredged material disposal mitigation include: 1) minimizing habitat losses through the site selection process, 2) compensation for wildlife habitat losses through habitat improvement subsequent to the disposal, 3) minimizing recreational use of environmentally sensitive areas through site landscape, design, and vegetation, 4) erosion control, and 5) compensation for losses at a site other than the disposal site.

The first objective was addressed by the GREAT II Team under their Site Selection Priorities. Based on these priorities, a disposal plan was developed. This is the Primary Site alternative with stockpiling. Although this alternative has greatly reduced the habitat losses, there is still a loss of 2752 terrestrial HUs which require mitigation. Several measures can be accomplished to further reduce or compensate for this loss.

Inspection of the mitigation objectives and the Primary Site alternative with stockpiling reveal several measures which should be pursued. First, as can be seen in Table 2, impacts can be reduced by increasing the beneficial use of dredged material. This can be done by increasing demand at potential sites such that all material is removed from the site before the next disposal occurrence and by encouraging productive use of material from dredge cuts that do not have a nearby primary stockpile site. Both will be accomplished by the GREAT II Team recommendation to a long-term commitment to beneficial use. For the former, OSIT will evaluate this priority each time a disposal site selection is made. The latter will require specific promotion of increased beneficial use in all pools, especially Pools 14, 15, 16, 17, 21 and 22.

The second mitigation objective involves primarily revegetation of disposal sites not used for stockpiling. This involves compensation of approximately 1700 HU. Inspection of these losses reveal that the majority occur in lowland hardwood habitat and within all guilds of this habitat type. Therefore, revegetation of the sites should be accomplished.

Vegetation will not only increase habitat value but also could preclude recreational use and protect the site from severe erosion, the third and fourth objectives. However, dredged material is typically pure sand with little or no organic matter content. Without organic matter, the top horizon layer does not retain moisture and lacks essential plant nutrients. Past attempts to revegetate disposal sites in an efficient and economically feasible way with different species of beach or dune grasses have been basically unsuccessful.

To achieve adequate mitigation it becomes apparent that organic matter must be introduced to the dredged sand. At present, no practical way of revegetating sand piles is available, but the Rock Island District will experiment with silt, straw and wood chip treatments. It has been suggested that compost, whey, sewage sludge, or other organic wastes be experimented with. However, at this time placement of solid waste in the floodplain is strictly prohibited.

Organic matter can be applied using a silt overburden. This method is being experimentally used on the Fulton Flood Protection Project - Stage III-C, Cattail Slough, Illinois. Basically, silt is spoiled over the sand layer using standard dredging techniques. This containment of the water in the silt material by perimeter dikes is essential to reduce erosion and to control turbidity.

Straw and wood chip mulches are suitable if their carbon to nitrogen ratio is less than 25:1. Above this C to N rate, these materials could inhibit nitrogen, phosphorous, and sulfur availability (USDA, 1979<sup>1</sup>). Hay and grass mulches may also present problems with nutrient balance.

Hand application of these mulches is suitable only for small areas. Mechanical methods include hydroseeding and hydromulching. This process provides seed, fertilizer, and mulch dispersed in a water solution spray and is appropriate for large areas (additional information is available from Kay, 1976<sup>2</sup>).

Once organic material is introduced, revegetation should not be up to natural succession. Creation of monotypic environments of willow and maple offer minimum diversity, and will not recoup HU losses as periodic disposal continues. Beneficial terrestrial species include a variety of oak, walnut, ash, elm, redstem dogwood and Japanese honeysuckle species that should be considered for plantings. It is the opinion of the FWMWG that successful revegetation of lowland hardwoods with these species or others beneficial to wildlife will adequately mitigate the HU losses.

This leaves approximately 1000 HUs to mitigate losses at stockpile sites. Since these sites are subject to recurrent disturbance, it is not practicable to mitigate losses at the disposal site. Therefore, the last mitigation objective must be employed to fully compensate disposal losses. Measures to meet this objective include refuge levee repair, backwater renovation or wetland creation. Providing sand for levee repair in refuge and game management areas should be adopted whenever possible. This will provide for secondary habitat improvement through wildlife management. Another technique for habitat improvement involves backwater restoration. HU values can potentially be increased through dredging for both aquatic habitat (backwater renovation) and terrestrial habitat (through deposition and revegetation of silt material). Specific backwater alterations have been identified in Recommendation 41 (see GREAT II Main Report).

<sup>1</sup> USDA. 1979. Mining and Reclamation in the West. Gen. Tec. Rept. 64, Intermountain For. and Range Exp. Stat., Ogden, UT.

<sup>2</sup> Kay, B.L. 1976. Hydroseeding, straw, and chemicals for erosion control. Agrom. Prog. Rept. No. 77. Univ. Cal., Davis. 14pp.

TABLE 1  
EXISTING HU AND HU LOSS/GAIN OF PRIMARY SITES (WITHOUT STOCKPILING)

Pool	Wetlands		Lowland Hardwoods		Agricultural Field		Levee		Old Field		Open Water		Mowed Grass		Breached Levee		Dredged Material		Developed		Total	
	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU	E	Δ HU
11	0	0	0	0	325	-163	0	0	0	0	0	0	0	0	0	0	165	-28	166	-88	656	-257
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	-17	31	-17
13	0	0	391	-111	0	0	751	-213	0	0	100	-20	175	+130	0	0	0	0	61	-33	1478	-247
14	0	0	1725	-484	0	0	0	0	390	-200	0	0	0	0	0	0	0	0	137	-73	2252	-777
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	-11	0	0	53	-11
16	0	0	793	-201	0	0	0	0	225	-116	0	0	0	0	0	0	0	0	110	-59	1128	-277
17	0	0	563	-167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	196	-104	759	-271
18	0	0	516	-130	645	-322	360	-133	200	-103	0	0	0	0	0	0	84	-16	0	0	1805	-274
19	0	0	2229	-596	0	0	0	0	341	-177	0	0	0	0	0	0	42	-25	50	-27	2662	-473
20	0	0	2998	-768	697	-463	0	0	0	0	0	0	0	0	0	0	396	-60	40	-22	4131	-2711
21	0	0	1613	-471	0	0	0	0	21	-10	0	0	0	0	0	0	99	-21	107	-68	1870	-273
22	0	0	2113	-541	0	0	864	-280	0	0	0	0	0	0	0	0	0	0	81	-69	3058	-273
Total	0	0	12971	-2432	1667	-949	1975	-606	1177	-266	100	-20	175	+130	839	-17	979	-17	979	-17	10883	-2270

E - existing habitat units

Δ HU - loss or gain in habitat units

TABLE 2  
EXISTING HU AND HU LOSS/GAIN OF PRIMARY SITES (WITH STOCKPILING)

Pool	Wetlands			Lowland Hardwoods			Agricultural Field			Levee			Old Field			Open Water			Mowed Grass			Breached Levee			Dredged Material			Developed			Total		
	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU	E	Δ	HU			
11	0	0	0	0	0	0	65	-36	0	0	0	0	0	0	0	0	0	0	0	0	0	165	-24	0	86	-4	0	316	-40				
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	-4	0	12	-4				
13	0	0	0	78	-25	0	0	0	216	-131	0	0	0	0	20	-4	175	+130	0	0	0	0	0	0	0	12	-4	0	501	-34			
14	0	0	0	901	-247	0	0	0	0	0	0	312	-155	0	0	0	0	0	0	0	0	0	0	0	37	-12	0	1250	-424				
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	-11	0	0	0	0	0	53	-11				
16	0	0	0	793	-201	0	0	0	0	0	0	61	-33	0	0	0	0	0	0	0	0	0	0	0	20	-6	0	874	-14				
17	0	0	0	563	-167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	-8	0	588	-172				
18	0	0	0	31	-10	78	-42	0	72	-44	0	32	-17	No Data Available			0	0	0	0	0	82	-152	0	0	0	0	495	-142				
19	0	0	0	329	-106	0	0	0	0	0	0	112	-60	0	0	0	0	0	0	0	0	42	-25	22	-11	0	505	-11					
20	0	0	0	328	-104	273	-42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	-7	20	-6	0	617	-12					
21	0	0	0	1258	-360	0	0	0	0	0	0	16	-9	0	0	0	0	0	0	0	0	99	-21	25	-12	0	1308	-27					
22	0	0	0	892	-300	0	0	0	864	-394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	-9	0	1733	-17				
Total	0	0	0	5173	-1559	416	-113	1152	-479	533	-274	20	-4	175	+130	637	-11	246	-112	1733	-17												

E - existing habitat units  
Δ HU - loss or gain in habitat units

TABLE 3

ESTIMATED ACRES<sup>1</sup> REQUIRED FOR DISPOSAL AT PRIMARY SITES

Pool	Wetlands		Lowland Hardwoods		Agricultural Field		Levee		Old Field		Open Water		Wooded Grass		Breached Levee		Dredged Material		Developed		Total <sup>3</sup>
	W/O <sup>1</sup>	With <sup>2</sup>	W/O	With	W/O	With	W/O	With	W/O	With	W/O	With	W/O	With	W/O	With	W/O	With	W/O	With	
11	0	0	0	0	12.5	2.5	0	0	0	0	0	0	0	0	0	0	25	25	33.8	17.5	71
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.3	2.5	6
13	0	0	12.5	2.5	0	0	31.3	9.0	0	0	10	2	17.5	0	0	0	0	0	12.5	2.5	44
14	0	0	55.1	28.8	0	0	0	0	24.4	19.5	0	0	0	0	0	0	0	0	27.9	7.5	107
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0	0	8
16	0	0	25.5	25.5	0	0	0	0	24.1	3.8	0	0	0	0	0	0	0	0	22.5	4.0	62
17	0	0	18	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	5.0	58
18	0	0	16.5	1.0	21.8	3.0	15.0	3.0	12.5	2.0	0	0	0	0	0	0	42.8	42.8	0	0	112
19	0	0	71.2	10.5	0	0	0	0	21.3	7.0	0	0	0	0	0	0	6.3	6.3	10.3	4.5	103
20	0	0	95.8	10.5	26.8	10.5	0	0	0	0	0	0	0	0	0	0	60	4.0	8.2	4.0	191
21	0	0	52.5	40.2	0	0	0	0	1.3	1.0	0	0	0	0	0	0	15	15	21.9	5.0	91
22	0	0	67.5	28.5	0	0	35.0	36.0	0	0	0	0	0	0	0	0	0	0	16.6	5.5	120
Total	0	0	415	166	64	16	82	48	74	33	10	2	18	18	157	101	200	58	1020	442	

1/ Primary Sites "without stockpiling" - All sites contain 50 year volume of material. Lowland hardwoods and dredged material disposal depth is 6 feet. For all other habitat types, disposal depth is 12 feet.

2/ Primary Sites "with stockpiling" - all stockpile sites contain volume of two dredging occurrences to a depth of 12 feet. For all sites that productive use has not been identified, acreage is same as "without stockpiling".

3/ Totals have been rounded.

Creation of wetlands from dredged material was not considered in detail by GREAT II. However, Section 150 of Public Law 94-587 authorizes the COE to plan and establish wetland areas in connection with dredging for a water resources development project and should be evaluated by the FWIC for possible implementation.

The exact improvement to habitat value from the above measures will be dependent on a site by site basis and will have to be monitored by the FWIC.

Based on the above discussion, the GREAT II Team recommends:

1. The RID/COE mitigate all losses due to disposal of dredged material.
2. Each Primary Site be evaluated by the FWIC to determine the appropriate mitigation measures for that site. This should be developed into a total mitigation plan and submitted to the ORRMT for approval and incorporation into the Primary Site plans.
3. Mitigation measures be tested and monitored by the RID/COE and the FWIC to determine changes in HU values. The mitigation plan should be reevaluated as appropriate.
4. Additional information be collected (particularly in association with tracing of "tagged" dredged material) to properly address aquatic habitat impacts. Material would have to be tagged for all types of disposal (i.e., beach, thalweg, double pumping, etc.).
5. The habitat evaluation and mitigation plan be updated for new disposal sites and, as information becomes available, on the impacts on aquatic habitat.
6. The OSIT insure that the recommended mitigation measures are accomplished.

## H. RID/COE MATERIAL TRANSPORT POLICY

The RID/COE should dispose of dredged material in accordance with the objectives and procedures of the Channel Maintenance Handbook and in cooperation with the states and other agencies comprising the OSIT. Disposal site selection decisions should be made independently of any compensation which might be offered or withheld by any governmental body, business concern, or private individual. The profit which any organization or individual derives or is deprived of from utilization or sale of dredged material should be not cause for rejection of disposal sites which benefit national economic development, recreation, or environmental protection.

## I. EMERGENCY AND IMMINENT CLOSURE PROCEDURES

Shoals in river channels develop quickly and their behavior is difficult to predict. As a result, an emergency situation such as a grounding or an impassable channel is more likely to occur on a river such as the UMR in the GREAT II study area.

### 1. Emergency Definition

The RID/COE should proceed with an emergency when required to free a grounded vessel, to remove shoals in the channel as a result of a vessel freeing itself or when the channel is impassable.

The emergency will continue only until an adequate channel depth and width, as determined by the RID/COE, is restored to allow vessel passage.

### 2. Emergency Procedures

When the RID/COE determines that emergency dredging, as defined above, is required, immediate notice will be given to the U.S. Coast Guard, the appropriate Federal and State regulatory agencies, and representatives of the OSIT. Equipment will be mobilized directly to the site and dredging will be accomplished as expeditiously as possible to restore navigation. As soon as a passable channel is restored, the emergency condition ceases to exist.

The material placement sites should be chosen based on the priorities and procedures established earlier in this chapter (see Site Priorities and OSIT Procedures). If time permits, an OSIT recommendation should be developed. The RID/COE will be responsible for subsequent mitigation of environmental damage.

Subsequent dredging and disposal (after the channel is passable) to restore normal channel conditions should be accomplished in compliance with the procedures established in this handbook.

### 3. Imminent Closure Definition

Imminent closure should be defined as:

- a. When the actual water depth is projected by the Rock Island District Engineer to be 10 feet or less within 14 days or less,
- or
- b. When the channel width is less than 85% of the normally maintained width.

### 4. Imminent Closure Procedures

Disposal site procedures under imminent closure conditions should be consistent with those established in this handbook for normal conditions.



Within 30 days following the emergency dredging, the COE will provide the following information to appropriate regulatory agencies: (1) nature of occurrence that necessitated the emergency or imminent closure dredging; (2) sounding data; (3) dredging depths; (4) volume of dredged material; (5) type(s) of dredging equipment used; (6) method(s) of dredged material placement; (7) available data concerning the chemical and physical composition of the sediment; (8) duration of dredging operation, including beginning and end dates; (9) project alternatives considered including alternative dredging methods and placement sites; (10) discussion of mitigative measures that were considered and used; (11) discussion of any biological effects; and (12) written projections of water surface and depth.

## J. ADDITIONAL REQUIREMENTS

The Dredged Material Disposal Plan is designed to allow for changes of site selection priorities as new information is obtained or environmental and/or economic conditions change. Several studies and actions are necessary for the flexibility and update of the plan and should be high priority.

The Corps of Engineers should conduct an environmental and economic analysis for implementation of the GREAT II Dredged Material Disposal Plan (DMDP) and its resultant equipment needs and request the necessary appropriations from Congress to obtain the capability so that all the objectives as presented in the GREAT II Channel Maintenance Handbook can be accomplished within five years of the Dredged Material Disposal Plan approval by the GREAT II Team. Until this capability is available, the COE should utilize contract dredging when necessary to meet these objectives.

This recommendation is based on the evaluation of Primary Site impacts which indicates a 32 percent reduction in Habitat Units through the project period. Because of the long-term negative impacts, the RID/COE should agree to:

1. A long-term commitment to the beneficial use of dredged material. Beneficial use may include but not be limited to the periodic nourishment of beaches approved by the DMDP or in the future by OSIT. A list of potential users of dredged material is contained in the Dredged Material Uses Work Group Appendix. The OSIT will be responsible for maintaining a list of potential users and advising them of dredged material availability.
2. A demonstration dredging project being conducted during 1981 or 1982 by the St. Paul and Rock Island Districts of the COE to determine the feasibility and cost effectiveness of accomplishing channel maintenance by:
  - a. Mechanical dredging with a backhoe directly loading onto barges.

- b. Hydraulic dredging with direct loading onto barges.
- c. Mechanical unloading at material placement sites.
- d. Hydraulic unloading at material placement sites.

Because of the nature of the river corridor, the number of material placement sites which minimize the impacts on flood flows and wetlands and have access for beneficial use are often beyond existing equipment capability. Barges are considered one of the most efficient methods of moving relatively small quantities of dredged material over distances greater than one mile. The GREAT I and GREAT II Material and Equipment Needs Work Groups (MENWG's) considered the feasibility of accomplishing channel maintenance by the proposed methods. However, because of funding and time constraints, feasibility studies were never conducted.

Studies and investigations by the GREAT I and GREAT II MENWG's (MENWG Appendices; UMRBC Dredging Symposium, 1979; and Goodier, Thompson and Cutting, 1980) and contacts with private contractors indicate the possibility that dredging techniques which used barging as a method of moving dredging material long distances may be cost effective and environmentally sound. This view is not widely accepted because of the lack of field trials under actual channel maintenance conditions. The Teams also recognized that any recommendation to purchase this type of equipment is premature because the techniques have not been adequately tested during actual channel maintenance dredging. A demonstration project to determine the feasibility of this method is recommended.

The demonstration project should be conducted by a contractor or by the COE with rented equipment. Exact details (i.e., dredge cuts, volumes, location of material placement sites, tests to determine turbidity levels, etc.) of this project should be established by the St. Paul and Rock Island Districts and should be reviewed and approved before implementation by all agencies participating in GREAT I and II. Particular attention should be paid to evaluating the equipment's production rates for various face cuts; loading position; time and degree of channel obstructions while dredging; reliability loading, unloading, and transportation costs; fuel efficiency; and other operational factors.

3. Trace dredged material to evaluate the environmental and hydraulic impacts of riverine disposal and subsequent movement of dredged material placed in the floodplain. In this regard, the "Planning of Demonstration Project for Main Channel Disposal of Dredged Material" report (July, 1980) was prepared to identify the most feasible methods of tracking dredged material in the riverine environment.

Although the report addresses thalweg disposal, it is thought that the method of using fluorescent dyes can also be used in tracking other types of floodplain disposal such as beach nourishment and disposal in lowland hardwoods. Therefore, a complete dredged sedi-

ment tracing experiment, including biological studies should be conducted by the COE within five years. Priority should be given to the main channel (thalweg) disposal experiment. The scope of work for assessing both the geomorphic and environmental impacts should be approved by the OSIT.

4. Evaluate the environmental and economic impacts of disposal of dredged material behind levees. A significant demand for dredged material has been shown from the levee districts adjacent to the river. However, the potential problems such as containment and return flows need to be developed.

5. Investigate within five years the environmental and economic impacts of double pumping of dredged material.

6. Use of alternative methods of dredging and disposal in sensitive areas.

7. Insure access to equipment necessary to dispose of dredged material in the primary sites designated in the Dredged Material Disposal Plan.

All of the above should be coordinated with the OSIT and the FWIC as new information becomes available the ORRMT should reevaluate the primary sites selected by the GREAT II Team and the site selection priorities, operating under the same voting procedures used by the GREAT II Team. This information should be incorporated into the Annual Plans of Action (POA's) and provided to the OSIT for implementation and revision of the Dredged Material Disposal Plan.

## CHAPTER V

### LOCKS, DAMS, AND CONTROL STRUCTURES

Closing and wing dams combined with the lock and dam system are the primary means of maintaining the 9-foot navigation project. The Rock Island District currently has over 1,150 regulating structures to maintain channel position and depth. The total length of these structures is approximately 178 miles averaging over 800 feet in length per structure. What effects these structures have on the quantity and frequency of dredging is not fully known. However, the Rock Island District's program to catalog and evaluate existing structures, as will be discussed in a later section, is expected to provide this information for areas where dredging is a recurrent problem.

The impacts of this channelization are severe in that it precludes any significant side channel and backwater creation, and as existing backwaters are filled no replacements are provided. There is no feasible way to counteract this reduction in aquatic areas. However, the rate of reduction can be affected by implementation of the Channel Maintenance Plan. The river experienced an increase in surface water area when the lock and dams were constructed. Since the rivers discharge hasn't been increased, some accretion is natural as the river attempts to modify its cross-sectional water area.

To prevent additional environmental impacts, control structures should continue to be maintained at elevations below the Lowest Operating Level (IOL) or flat pool. The effects of notching and other modifications should also continue to be studied; the goal is to prevent land accretion in the area of control structures. In addition the rocky substrate provided by wing dams have the potential to increase habitat diversity adjacent to the main channel.

The Corps of Engineers began building regulatory structures in 1878 when the 4-1/2-foot channel was authorized. The 4-1/2-foot channel was to be achieved by closure of chutes, bank revetment, and contraction of the channel by wing dams. In 1907, the 6-foot channel was authorized on the upper river. The depth increase over the 4-1/2-foot channel was to be accomplished by construction of rock and brush dikes, which like the earlier structures, were low structures extending laterally from the bankline into the river to constrict low-stage flows.

Under the 1930 authorization for the extension of the 9-foot channel from St. Louis to St. Paul, the approach was considerably different than the 4-1/2-foot and 6-foot projects. The authorization stated that a 9-foot navigation channel, at least 300 feet wide, was to be achieved by construction of a system of locks and dams to completely regulate the flow, as well as supplemental dredging to maintain the channel. This required the addition of many new wing dams and the upgrading of others. However, some of the 4-1/2-foot and 6-foot dikes were not modified and were submerged when the 9-foot project was completed.

Considerable changes in the condition of the dikes has been observed since 1930. In many cases, the exact integrity of the structures is unknown.

The RID/COE recently developed a committee entitled "Committee for the Assessment of Regulatory Structures" (CARS), to evaluate the status of regulatory structures in the GREAT II area. Regulatory structures must be kept in good condition to retain their hydraulic effectiveness. These structures must be assessed on a regular basis to determine if degradation of the structure is occurring. The RID/COE previously had no regular system to evaluate these structures to determine if their dredging problems were a result of ineffective (degraded) regulatory structures, or indicated a need for new regulatory structures in a particular chronic area.

Therefore, the RID/COE, in order to reduce both short and long-term dredging requirements through evaluation of river hydraulics should institute CARS permanently. The membership of CARS is to be expanded to include the OSIT chairman or designee. CARS is to be a non-voting advisory group whose function is to advise the RID Operations Division in the maintenance of control structures. CARS should advise the RID/COE as to the following activities:

- 1) Reduce the quantities of dredged material for each dredging occurrence in the short-term by continuing to perform detailed hydrographic surveys of each prospective dredge site to find the location, depth and width of the best channel for that stretch of the river. Recommendations should be submitted to the U.S. Coast Guard as to where the channel might stabilize so that navigation buoys can be realigned.
- 2) Reduce the quantities of material dredged in the long-term by refining the existing two-dimensional sediment transport model to assess the regulatory structures effectiveness and further needs near chronic dredge areas. The model can then be used to determine the optimum channel size that will meet navigation requirements for a given stretch of the river knowing the flow and depth conditions that exist there.
- 3) Use of the results of the GREAT II Wing Dam Classification Study and the Wing Dam Notching Study to ascertain the relationships between biological and physical parameters of various types of wing dams. CARS, in coordination with the GREAT II proposed Fish and Wildlife Interagency Committee (FWIC), should utilize any recent and on-going studies on wing dams, in any decision to repair, alter or construct training or revetment structures, so that fish and wildlife needs are considered.
- 4) Based on information obtained in all of the above tasks, evaluate all recurrent dredging sites to determine if regulatory structures could reduce dredging in the area or to determine if shoaling could be induced at areas where the impacts of dredging and disposal operations would be minimal. If so, the RID/COE should optimize

benefits to both navigation and fish and wildlife resources in the design of any repair, alteration or construction of a regulatory structure consistent with the sediment transport model and wing dam studies. First priority should be given to restoring the bank channel closure structures near the Huff Hunt Island in Pool 20.

Wing Dam Notching Study results will be available by May, 1981. The Wing Dam Classification Study is an on-going study by the Iowa Conservation Commission and funded in part by the National Marine Fisheries Service.

5) Take the following actions, associated with recurrent dredge sites, identified as first priorities, by the DRWG.

a) Pool #11: Study should be conducted of the wing dams above and the control structures directly across from Hurricane Island (R.M. 598.6 to 599.1).

b) Pool #11: Closure of Ackerman's Cut, located at R.M. 613.8, except to small boat traffic, should be accomplished.

c) Pool #12: Study of closing dam at upstream end of Deadman's Slough, located at R.M. 569.1, for adequacy to keep sediments moving in the main channel.

d) Pool #13:

1) Study of wing dams in the Sand Prairie reach above the mouth of the Maquoketa River, located at R.M. 549.8 to 550.8, for adequacy and design elevation to keep sediments moving in the main channel.

2) Monitor the restored wing dams, located at R.M. 546.0 to 548.8, for the next five years to determine that wing dams remain adequate to move sediment, especially in years when ice jams occur.

3) Monitor river channel from R.M. 544.0 to 545.0 to determine if additional sediments are being deposited in this reach. If additional sediments are being deposited, Wing Dams 14, 15, 17 and 18 should be studied for adequacy to keep sediments moving in the main channel.

4) Monitor wing dams and bank revetment from R.M. 540.5 to 541.0 to determine if further deterioration has taken place.

5) Closing Dam 15 at R.M. 532.9 should be examined for adequacy to maintain flows in the main channel.

6) Wing Dams 19, 20, 21 and 22 located on left bank at R.M. 531 to 532 should be examined for adequacy to maintain flows in the main channel.

e) Pool #14:

1) A model study should be made of the reach of the river from R.M. 512.8 to 517.5 to determine what action should be taken to keep the sediments moving in the main channel and Beaver Slough channel.

2) Wing Dams 25, 26 and 27 and Closing Dam 17 located at R.M. 503.3 to 505.9 should be examined for adequacy to maintain flow in the main channel.

f) Pool #16:

1) A flow study should be made of the reach of the river from R.M. 472.0 to 473.2 to determine the method to keep the sediments moving in the main channel at Buffalo, Iowa.

2) Regulating structures located at R.M. 416 to 462 should be examined for their adequacy to keep sediments moving in the main channel.

g) Pool #17:

1) Regulating structures located at R.M. 447.5 to 448.5 should be examined for their adequacy to keep sediments moving in the main channel.

h) Pool #18:

1) Regulating structures located at R.M. 431 to 432 should be examined for adequacy to keep sediments moving in the main channel.

2) Regulating structures located at R.M. 425.5 to 426.5 should be examined for adequacy to keep sediments moving in the main channel.

3) Examination of Wing Dams 16, 2, 3, 6, 7, 33 and 35, located at R.M. 424.2 to 424.7 for adequacy to keep sediments moving in the main channel.

4) Regulating structures located at R.M. 418.5 to 420.5 should be examined for adequacy to keep sediments moving in the main channel.

i) Pool #19:

- 1) Regulating structures located at R.M. 404.3 to 408.4 should be examined for adequacy to keep sediments moving in the main channel.
- 2) Regulating structures located at R.M. 398.2 to 399.2 should be examined for adequacy to keep sediments moving in the main channel.
- 3) The placement of a regulating structure at R.M. 399 should be studied to determine if it would improve the flow in the main channel.

j) Pool #20:

- 1) The recommendations of the University of Iowa, Institute of Hydraulic Research report on Fox Island Beach, R.M. 355 to 356 and Buzzard Island Beach, R.M. 349 to 350 should be implemented.

k) Pool #21:

- 1) Wing Dams 12 and 14 on the right bank and 29, 15, 16 and 13 on the left bank and Closing Dam 5 between R.M. 335.9 to 337.3 should be examined to determine their adequacy to keep sediments moving in the main channel.
- 2) Regulating structures located at R.M. 331 to 333.2 should be examined to determine their adequacy to keep sediments moving in the main channel.

l) Pool #22:

- 1) Regulating structures located at R.M. 323.5 to 324.7 should be examined for adequacy to keep sediments moving in the main channel.
- 2) Wing Dams located at R.M. 319.5 to 321.0 should be examined for adequacy to keep sediments moving in the main channel.
- 3) Closing structures located above Beebe Island, R.M. 317 should be examined for adequacy to keep sediments moving in the main channel.
- 4) The placement of a closing dam at the upstream end of Armstrong Island, R.M. 313.7, and Wing Dam 17 at R.M. 304.1 should be examined for adequacy to keep sediments moving in the main channel.



5) Wing Dam 12 at R.M. 305.4 should be examined for adequacy to keep sediments moving in the main channel.

6) Closing Dam 2 at R.M. 302.7 should be reconstructed to the original elevation and the wing dams located at R.M. 302.0 to 303.5 should be examined for adequacy to keep sediments moving in the main channel.

## CHAPTER VI

### SMALL BOAT HARBORS

The small boat harbors maintained by the RID/COE were built by the COE with local sponsorship. Before 1977 most harbor depths were maintained by the RID using open water disposal. On-land disposal is now practiced, and local sponsors are usually required to provide and prepare disposal sites. Therefore, none were selected by GREAT. The OSIT will be responsible for reviewing the sites before disposal begins and for advising the RID when sites are unacceptable.

Since the dredged material is usually silt, the environmental impacts are thus quite different from main channel disposal. Impacts of this type of disposal vary on a case by case basis. The OSIT will review each disposal site and recommend mitigation measures as appropriate.

The following criteria (listed in order of priority) are provided to assist local sponsors and for OSIT review of disposal sites to determine acceptability:

1. Dredged material has beneficial use which will cause it to be removed from the disposal site.
2. Site has beneficial use potential that will have little or no environmental impact.
3. Impacts of disposal at site will be adequately mitigated.
4. Open water disposal will be avoided.

## CHAPTER VII

### PROJECT MITIGATION

Due to past RID/COE activities (i.e., lock and dam construction and channel maintenance activities), there are backwater areas which have lost considerable habitat value. The RID/COE should mitigate losses to the following sites listed by the SCWG. Justification and possible solutions to these problem sites are described in Section IID of the SCWG Appendix.

<u>Pool</u>	<u>Site</u>	<u>River Mile</u>
11	Dam 10	615.1L
	Cassville Slough	614.9L
	Goetz Island	613.2R
	Bunker Chute	603.3R
	Hurricane Island and Chute	592.0-598.5L
	Dam 11/Highway 61	583.1L
12	No Sites	
13	Dam 12	556.7L
14	Dam 13	522.5R
15	No Sites	
16	No Sites	
17	Blanchard Island	449.0L
18	Unnamed	429.2-430.8R
	Kingston Bar	424.0R
19	Otter Slough	407.0-409.0R
	Otter Island	408.5R
	Rush/Baby Rush Islands	406.2R
20	Taylor Chute	353.0L
	Huff/Hunt Islands	349.0-350.0L
21	Teal Island	332.5L
	Broad Lake/Quincy Bay	328.0-329.3L
22	Texas Chute	324.0L
	Beebe Island	316.7-318.5L
	Unnamed	316.0L
23 (22 Tailwaters)	Cottel Island	300.0-301.0L

## CHAPTER VIII

### DREDGING REQUIREMENTS

GREAT investigated the reduction of dredged material disposal impacts through a reduction in overdepth dredging. It was found that in some areas the amount of overdepth dredging could be reduced because the channel would stabilize hydraulically at the lesser depth. As a result, it is recommended that average annual quantities of dredged material be minimized where possible through the application of technically supported reduced depth dredging and the maintenance of minimum channel widths (to be implemented by CARS as discussed in Chapter V). Decisions on dredging depths should also include the potential for increased dredging frequency and the demand for dredged material.

GREAT was also concerned with the effects of dredging on vessel safety and reviewed numerous technical documents on maneuvering characteristics. It was found that vessel maneuvering is affected by depths of water two times vessel draft and those effects become significant when the ratio is reduced below 1.5 times draft. The loss of rudder and propeller control increases the risk of grounding or collision. With present vessel operating equipment, acceptable vessel control can be maintained with a 2-foot underkeel clearance. It is therefore recommended that the RID/COE channel maintenance program insure that a minimum 2-foot underkeel clearance is maintained for commercial navigation. Under certain hydraulic conditions, the RID/COE may allow the channel to fall below 11-feet flat pool. Dredging depths in approaches to rigid structures (etc.) may require an additional depth as determined by technically supported safety criteria.

GREAT recommends that the following channel maintenance items be accomplished by the RID/COE to provide a safe navigable channel:

1. Deepening of the downbound exit at Lock 15. This would probably involve blasting, as this area has a rock bottom.
2. Straightening the channel alignment and removal of the rocks in the vicinity of R.M. 489.

EXHIBIT 1

INDEX TO  
DISPOSAL SITE NUMBERING SYSTEM

# INDEX TO DISPOSAL SITE NUMBERING SYSTEM

<u>Pool</u>	PFWG <sup>1</sup> (Old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 11	TF1	11.1	614.7R
	D3	11.2	614.5R
	D2	11.3	614.5R
	D4	11.4	614.2R
	HD14	11.5	612.3R
	HD9	11.6	610.5L
	HD7	11.7	609.0L
	D28	11.8	607.7L
	D29	11.9	607.6L
	D5	11.10	607.6R
	D33	11.12	606.5L
	D35	11.13	604.5L
	D36	11.14	604.2L
	D7	11.15	602.8R
	D8	11.16	599.8R
	D9	11.17	596.0R
	HD1	11.18	595.8R
	D2-24	11.19	594.5L
	D11	11.20	589.4R
	D10	11.21	589.3R
	D18	11.22	585.0L
Pool 12	HD6	12.1	581.5L
	D2	12.2	581.0R
	D1	12.3	580.9R
	HD5	12.4	579.8L
	TF579.5	12.5	579.5R
	D23	12.6	579.2L
	D24	12.7	579.0L
	D3	12.8	578.0R
	D4	12.9	578.0R
	D25	12.10	578.0R
	D6	12.11	577.5R
	D26	12.12	577.1L
	D5	12.13	576.9R
	D28	12.14	576.2L
	D27	12.15	576.0L
	D30	12.16	575.9L
	D29	12.17	575.5L
	D31	12.18	575.5L
	D32	12.19	574.6L

1. The numbering system as displayed in this column is the same as the system used on the maps in the draft Plan Formulation Technical Appendix.

<u>Pool</u>	PFWG Old <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 12 (Cont.)	D9	12.20	573.8R
	D7	12.21	573.8R
	D8	12.22	573.5R
	HD4	12.23	572.5R
	D33	12.24	570.4L
	D10	12.25	568.7R
	D11	12.26	568.5R
	HD3	12.27	568.5R
	D34	12.28	568.2L
	HD2	12.29	567.8R
	D35	12.30	566.5L
	DT53	12.31	566.5L
	D36	12.32	566.3L
	HD9	12.33	566.0L
	D39	12.34	563.0L
	D40	12.35	563.0L
	D37	12.36	562.7L
	D12	12.37	562.1R
	D38	12.38	561.8L
	D42	12.39	561.5L
	D41	12.40	561.5L
	D43	12.41	561.2L
	D44	12.42	560.7L
	D45	12.43	560.6L
	D15	12.44	560.2R
	D13	12.45	560.0R
	D14	12.46	559.9R
	D16	12.47	559.5R
	D46	12.48	559.2L
	D47	12.49	559.2L
	D48	12.50	558.8L
	D17/18	12.51	558.4R
	D49	12.52	557.5L
	D19	12.53	557.4R
	D51	12.54	557.1L
	D50	12.55	557.1L
Pool 13	D1	13.1	555.2R
	D49	13.2	554.8L
	D2	13.3	554.8R
	D3	13.4	554.6R
	HD554.6	13.5	554.6R
	D4	13.6	552.9R
	D5	13.7	552.8R
	HD15	13.8	552.8R
	D6	13.9	552.6R
	D7	13.10	552.5R
	D8	13.11	552.1R
	D9	13.12	552.1R
	D10	13.13	552.1R

<u>Pool</u>	PFWG (Old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 13 (Cont.)	D11	13.14	551.6R
	D12	13.15	551.6R
	D13	13.16	551.1R
	D14	13.17	551.0R
	HD18	13.18	551.0L
	HD14	13.19	550.9R
	HD27	13.20	550.7R
	HD28	13.21	550.6R
	D51	13.22	550.3L
	HD12	13.23	549.8R
	D15	13.24	549.4R
	D16	13.25	549.0R
	SPG	13.26	548.9L
	D17	13.27	548.9R
	D21	13.28	548.5R
	D50	13.29	548.2R
	HD9	13.30	548.2R
	D19	13.31	548.1R
	D18	13.32	548.1R
	D22	13.33	547.9R
	D20	13.34	547.9R
	HD11	13.35	547.8L
	2D8	13.36	547.8L
	HD7/8	13.37	547.7R
	HD31	13.38	547.4R
	HD10	13.39	547.3L
	D23	13.40	547.3R
	HD25	13.41	547.1L
	HD30	13.42	547.1R
	HD29	13.43	546.8R
	D25	13.44	546.5R
	D24	13.45	546.5R
	HD6/26	13.46	546.3R
	D26	13.47	546.2R
	D52	13.48	546.0L
	HD21	13.49	545.9R
	HD22	13.50	545.8R
	HD23	13.51	545.7R
	HD24	13.52	545.6R
	TF4	13.53	544.9R
	2D6	13.54	544.5L
	HD5	13.55	544.5L
	D53	13.56	544.4L
	TF2	13.57	544.2L
	D55	13.58	542.8L
	D54	13.59	542.8L
	HD20	13.60	541.1L
	HD19	13.61	540.9R
	2D5	13.62	540.8R
	D31	13.63	540.8R



<u>Pool</u>	PFWG ( Old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 13	TF540.5	13.64	540.5R
(Cont.)	D56	13.65	539.9L
	HD4	13.66	539.5L
	TF539	13.67	539.0
	TF539L	13.68	539.0L
	TF537L	13.69	537.0L
	D72	13.70	536.9L
	D30	13.71	536.5R
	D48	13.72	535.9R
	D29	13.73	535.8R
	D28	13.74	535.8R
	D27	13.75	535.8R
	D32	13.76	535.2R
	D71	13.77	534.9L
	D70	13.78	534.9L
	D69	13.79	534L
	TF534	13.80	534.0L
	TF533.8	13.81	533.8L
	HD2'	13.82	533.5L
	HD3	13.83	533.2L
	HD2	13.84	533.2L
	D68	13.85	533.1L
	HD1	13.86	533L
	HD17/18	13.87	532.9L
	TF3	13.88	532.4L
	D67	13.89	532.1L
	D34	13.90	531.6R
	2D9	13.91	531.5R
	D33	13.92	531.5R
	HD531.4	13.93	531.4L
	2D4	13.94	531.1R
	D66	13.95	530.3L
	D65	13.96	530.2L
	D64	13.97	529.2L
	2D3	13.98	528.8R
	2D10	13.99	528.8L
	D63	13.100	528.6L
	D36	13.101	528.5R
	D37	13.102	528.2R
	2D2	13.103	528.2R
	D35	13.104	528.2R
	D40	13.105	527.4R
	D41	13.106	527.2R
	D39	13.107	527.2R
	D38	13.108	527.0R
	D43	13.109	526.8R
	D42	13.110	526.7R
	D44	13.111	526.5R
	D45	13.112	526.4R
	D62	13.113	525.9L
	D61	13.114	525.9L

<u>Pool</u>	<u>PFWG (Old) Number</u>	<u>New Number</u>	<u>River Mile</u>
Pool 13 (Cont.)	D46	13.115	525.6R
	TF1	13.116	525.5L
	HD16	13.117	525.5L
	-	13.118	524.5R
	D60	13.119	524.5L
	2D11	13.120	524.3L
	D47	13.121	524.0R
	D59	13.122	523.9L
	2D1	13.123	523.8
	D58	13.124	523.5L
	D57	13.125	523.4L
Pool 14	D60	14.1	523.0L
	TF519.5	14.2	519.5R
	HD66	14.3	519.2L
	HD19	14.4	518.9R
	HD18	14.5	518.6L
	PP1	14.6	518.5L
	D25	14.7	517.5L
	HD17	14.8	517.5R
	D28	14.9	517.3L
	HD16	14.10	517.2R
	HD55	14.11	516.7R
	D29	14.12	516.4L
	HD15	14.13	516.3L
	D30	14.14	516.1L
	D26	14.15	516.1L
	D31	14.16	516.0L
	D32	14.17	515.6L
	2D1	14.18	515.5L
	2D2	14.19	515.0L
	D33	14.20	514.8L
	D27	14.21	514.8L
	HD14	14.22	514.3L
	HD12	14.23	514.2R
	HD13	14.24	514.0L
	D34	14.25	514.0L
	D35	14.26	513.9L
	HD11	14.27	513.7R
	D36	14.28	513.7R
	D37	14.29	513.4L
	D24	14.30	513.2R
	D38	14.31	513.2L
	D23	14.32	513.0R
	HD64	14.33	512.9R
	D22'	14.34	512.9R
	D39	14.35	512.7L
	D22	14.35.01	512.6R
	TF512.5	14.36	512.5
	D40	14.37	512.3L

<u>Pool</u>	PFWG (Old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 14	D21	14.38	511.5R
(Cont.)	2D7	14.39	511.0R
	D20	14.40	510.9R
	2D8	14.41	510.7R
	D41	14.42	510.3R
	D41	14.43	510.3L
	D19	14.44	510.1R
	2D9	14.45	510.0R
	HD65	14.46	509.9R
	HD68	14.47	509.8R
	HD59	14.48	509.7R
	D42	14.49	509.6L
	D18	14.50	509.3R
	HD9	14.51	509.2R
	HD10	14.52	509.0R
	D17	14.53	508.8R
	D43	14.54	508.8L
	HD66	14.55	508.7R
	D16	14.56	508.3L
	D15	14.57	508.3L
	D44	14.58	508.3L
	2D10	14.59	508.0R
	D45	14.60	507.8L
	2D11	14.61	507.8R
	D14	14.62	507.8R
	D49	14.63	507.8L
	D46	14.64	507.5L
	D48	14.65	507.4L
	D47	14.66	507.2L
	D13	14.67	506.8R
	D10	14.68	506.2R
	HD8	14.69	506.1L
	D11	14.70	506.1R
Princeton Levee		14.71	506.0R
	D9	14.72	505.7R
	TF505.6	14.73	505.6L
	D50	14.74	505.6L
	D51	14.75	505.4L
	D52	14.76	504.2L
	HD7	14.77	504.0R
	D53	14.78	504.0L
	D12	14.79	503.9R
	HD6	14.80	503.8R
	HD5	14.81	503.6R
	D8	14.82	503.1R
	D6	14.83	503.0R
	D5	14.84	503.0R
	D54	14.85	502.9L
	D7	14.86	502.8R
	2D12	14.87	502.5R

<u>Pool</u>	PFWG (Old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 14 (Cont.)	2D4	14.88	502.5L
	D56	14.89	501.7L
	D55	14.90	501.3L
	2D3	14.91	500.5L
	D57	14.92	499.1L
	D4	14.93	498.2R
	D3	14.94	497.2R
	2D5	14.95	496.7L
	D58	14.96	496.4L
	D2	14.97	495.8R
	D59	14.98	495.6L
	2D6	14.99	495.0L
	HD71	14.100	494.6L
	D1	14.101	494.5R
	HD3	14.102	494.5R
	HD2	14.103	494.2R
	HD1	14.104	493.7R
Pool 15	D1	15.1	492.8R
	D2	15.2	492.6R
	D21	15.3	492.5L
	D3	15.4	492.4R
	D4	15.5	492.2R
	D5	15.6	491.6R
	HD1	15.7	491.4L
	D20	15.8	491.3
	D17	15.9	491.2L
	D6	15.10	491.0R
	D19	15.11	490.7L
	D18	15.12	490.5L
	2D6	15.13	490.5R
	2D5	15.14	490.4R
	HD3	15.15	489.8L
	2D4	15.16	489.7R
	HD2	15.17	489.6R
	HD4	15.18	489.4L
	D16B	15.19	489.3L
	D16A	15.20	489.3L
	D15	15.21	488.2L
	D7	15.22	488.2R
	2D1	15.23	488.2R
	2D2	15.24	488.1R
	D9	15.25	487.9R
	D8	15.26	487.7R
	D10	15.27	487.5R
	D11	15.28	487.4R
	D12	15.29	486.9R
	D14	15.30	486.8L
	D13	15.31	484.0R
	TF483.3	15.32	483.3R

<u>Pool</u>	PFWG (old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 16	HD6	16.1	482.8L
	D60	16.2	482.0R
	HD6'	16.3	481.8R
	D61	16.4	481.5R
	D57	16.5	481.2
	D58	16.6	481.5R
	D59	16.7	480.3L
	D62	16.8	480.2L
	D54	16.9	479.8R
	D55	16.10	479.5R
	D53	16.11	479.5R
	D56	16.12	478.7R
	D51	16.13	478.3R
	D50	16.14	478.2R
	D49	16.15	478.0R
	D46	16.16	478.0L
	D47	16.17	477.8L
	D48	16.18	477.7L
	D43	16.10	476.2R
	D44	16.20	476.2L
	D45	16.21	476.0L
	D41	16.22	475.0R
	D42	16.23	474.2L
	D36	16.24	474.3R
	D37	16.25	474.0R
	D38	16.26	473.7R
	D39	16.27	473.7R
	D40	16.28	473.4L
	HD5	16.29	473.0L
	D32	16.30	472.8L
	D33	16.31	472.5L
	HD4	16.32	472.5R
	D31	16.33	472.5R
	D34	16.34	472.3L
	D28	16.35	471.7R
	D29	16.36	471.1R
	D30	16.37	470.8L
	D25	16.38	470.3R
	D27	16.39	469.6L
	HD3	16.40	469.5L
	HD2	16.41	469.5R
	HD2'	16.42	469.5R
	D21	16.43	469.0R
	D22	16.44	468.0R
	D23	16.45	468.0L
	TF468	16.46	468.0R
	D24	16.47	467.9L
	D19	16.48	467.7L
	D20	16.49	467.2L
	D18	16.50	466.7R

<u>Pool</u>	PFWG (old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 16 (Cont.)	D14	16.51	465.8R
	D15	16.52	465.1R
	D11	16.53	464.6R
	D13	16.54	464.5L
	D12	16.55	464.2R
	2D5	16.56	462.7R
	HD1	16.57	461.7R
	2D6	16.58	461.2R
	TF1	16.59	460.9L
	D3	16.60	459.9R
	D5	16.61	458.8L
	D6	16.62	458.2L
	D2	16.63	457.1L
	D1	16.64	458.0R
Pool 17	D14	17.1	456.6L
	2D32	17.2	456.0L
	D13	17.3	455.8L
	D15	17.4	455.6L
	2D30	17.5	455.6L
	2D31	17.6	455.6L
	D12	17.7	455.4L
	D16	17.8	455.3L
	HD10	17.9	454.5L
	HD9	17.10	454.0L
	HD8	17.11	453.5L
	D17	17.12	452.8L
	TF452.5	17.13	452.5R
	D18	17.14	452.5L
	PH452	17.15	452.0L
	HD7	17.16	451.8L
	D2	17.17	451.6R
	HD6	17.18	451.5L
	D1	17.19	451.5R
	TF451.2	17.20	451.2R
	D3	17.21	451.0R
	D4	17.22	450.5R
	TF450	17.23	450.0L
	TF449.9	17.24	449.9R
	D6	17.25	448.5L
	HD4	17.26	448.1L
	HD5	17.27	448.1R
	D19	17.28	448.0L
	D5	17.29	448.0R
	HD2	17.30	447.4R
	D20	17.31	446.7L
	D11	17.32	442.2L
	D7	17.33	439.0L
	D10	17.34	437.5L

<u>Pool</u>	PFWG (old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 17	D9	17.35	433.2L
(Cont.)	D8	17.36	433.0L
Pool 18	D1	18.1	437.3R
	D2	18.2	436.0R
	TF435	18.3	435.0R
	HD434	18.4	434.0L
	DX	18.5	434.0R
	D3	18.6	433.0R
	D4	18.7	433.0R
	TF433	18.8	433.0R
	3D3	18.9	432.5L
	D15	18.10	432.5L
	3D4	18.11	432.4L
	D14	18.12	432.0L
	HD11'	18.13	431.6L
	HD11	18.14	431.5R
	D5	18.15	430.5R
	D16	18.16	428.3L
	HD9 <sup>+</sup>	18.17	427.3R
	HD9	18.18	427.3L
	HD10	18.19	427.3R
	3D2	18.20	426.8L
	D6'	18.21	426.8L
	D6	18.22	426.8R
	D17	18.23	425.9L
	D7	18.24	425.0R
	D18	18.25	424.5L
	HD6	18.26	424.3R
	HD7'	18.27	424.2L
	D8	18.28	421.8R
	D19	18.29	421.5L
	TF420.5	18.30	420.5R
	HD5	18.31	420.4R
	HD3	18.32	419.3L
	D20	18.33	419.0L
	D9	18.34	418.3R
	TF418.2	18.35	418.2R
	TF417.5	18.36	417.5L
	D21	18.37	417.3L
	D22	18.38	417.0L
	D10	18.39	416.5R
	TF415.6	18.40	415.6L
	HD2	18.41	414.9R
	D23	18.42	414.8L
	D11	18.43	414.7R
	D24	18.44	414.0L
	D12	18.45	412.8R
	HD1	18.46	411.7L
	HD411	18.47	411.0L
	D13	18.48	410.8R

<u>Pool</u>	PFWG (Old) Number	New Number	River Mile
Pool 19	D1	19.1	409.6R
	D34	19.2	409.4L
	TF408	19.3	408.0R
	D33	19.4	408.0L
	HD17'	19.5	408.0L
	HD17	19.6	408.0L
	HD16	19.7	408.0R
	D33'	19.8	407.5L
	D2	19.9	407.3L
	HD15	19.10	407.0R
	HD14	19.11	406.4R
	HD13	19.12	406.2R
	HD9	19.13	405.9L
	D32	19.14	405.4L
	D32'	19.15	405.4L
	HD8	19.16	405.4R
	D3	19.17	405.4R
	HD7	19.18	405.3R
	TF404.8	19.19	404.8R
	D31	19.20	404.7L
	HD10	19.21	404.5L
	TF404.5	19.22	404.5
	CBC	19.23	401.6R
	HD6	19.24	401.5R
	HD5	19.25	401.3L
	D30	19.26	401.0R
	D4	19.27	401.0R
	D5''	19.28	400.5R
	D5	19.29	400.5
	HD3'	19.30	399.8L
	HD2	19.31	399.4L
	D6'	19.32	399.1R
	D6	19.33	399.1R
	TF398.1	19.34	398.1L
	TF398	19.35	398.0R
	D7	19.36	394.6R
	D29	19.37	394.3L
	HD394	19.38	394.0R
	TF394	19.39	394.0R
	D28	19.40	393.2L
	D8	19.41	390.5R
	D27	19.42	389.3L
	D26	19.43	387.8L
	D9	19.44	385.9R
	D10	19.45	385.8R
	D25	19.46	385.5L
	D24A/D24B	19.47	384.7L
	D23	19.48	383.3L
	D22	19.49	380.6L
	D11	19.50	379.0R



<u>Pool</u>	<u>PFWG (Old) Number</u>	<u>New Number</u>	<u>River Mile</u>
Pool 19 (Cont.)	D21	19.51	378.8L
	D12	19.52	376.7R
	D13	19.53	
	D20	19.54	375.5L
	D14	19.55	375.0R
	D15	19.56	373.0R
	D19	19.57	369.6L
	D16	19.58	369.5R
	D18	19.59	367.5L
Pool 20	D11	20.1	364.0L
	D23	20.2	363.2R
	TF362	20.3	362.0R
	TF361.5	20.4	361.5R
	D2	20.5	359.5R
	D3	20.6	358.8R
	D12	20.7	358.2L
	D13	20.8	357.2L
	D14	20.9	356.5L
	D4	20.10	356.0R
	D15	20.11	355.7L
	TF355	20.12	355.0R
	HD9	20.13	355.0R
	D15'	20.14	355.0L
	D16	20.15	353.9L
	D17	20.16	353.7L
	D6	20.17	353.7R
	D5	20.18	353.0R
	TF351	20.19	351.0R
	D18	20.20	350.8L
	D7	20.21	350.7R
	HD3	20.22	349.8R
	HD4	20.23	349.6R
	HD5	20.24	349.5R
	HD7	20.25	349.3R
	D19	20.26	349.2L
	D20	20.27	348.5L
	D21	20.28	348.0L
	TF347.7	20.29	347.7R
	D8	20.30	347.5R
	D9	20.31	346.0R
	TF345.7	20.32	345.7R
	TF345.3	20.33	345.3L
	HD1	20.34	343.8R
	D22	20.35	343.7L
	D10	20.36	343.7R
	HD2	20.37	343.6R
Pool 21	TF342.9	21.1	342.9R
	HD17	21.2	341.6L

<u>Pool</u>	PFWG (Old) <u>Number</u>	New <u>Number</u>	<u>River Mile</u>
Pool 21 (Cont.)	TF341.5	21.3	341.5R
	D17	21.4	341.2R
	D1	21.5	340.5L
	HD16	21.6	340.2L
	D16	21.7	339.8R
	TF339.7	21.8	339.7R
	TF339.5	21.9	339.5R
	HD15	21.10	339.4L
	D2	21.11	338.8L
	D3	21.12	338.6L
	D14	21.13	338.6R
	D15	21.14	338.5R
	HD14	21.15	338.3L
	HD13	21.16	338.0R
	HD12	21.17	337.1L
	D13	21.18	337.1R
	HD9	21.19	337.0R
	D4	21.20	337.0L
	HD11	21.21	336.7R
	HD10	21.22	336.7L
	TF336.6	21.23	336.6R
	TF336.5	21.24	336.5R
	HD9	21.25	336.2L
	TF335	21.26	335.0R
	D12	21.27	333.6R
	HD8	21.28	333.6L
	D11A	21.29	333.5L
	D5	21.30	332.7L
	HD7	21.31	332.6R
	HD6	21.32	332.5L
	TF332.3	21.33	332 - 333
	D11B	21.34	332.2R
	TF332	21.35	332.0R
	HD5	21.36	331.8L
	D6	21.37	331.5L
	HD331	21.38	331.0R
	D10	21.39	331.0R
	TF329	21.40	329.0R
	HD3	21.41	328.3L
	HD4	21.42	328.2R
	D9	21.43	328.0R
	D7	21.44	327.9L
	HD2	21.45	327.7L
	HD1	21.46	326.7R
	TF326.1	21.47	326.1L
	D8	21.48	325.5R
Pool 22	TF324.6	22.1	324.6L
	TF324	22.2	324.0R
	D1	22.3	324.0L
	HD13	22.4	323.8L

<u>Pool</u>	PFWG (old) <u>Number</u>	<u>New Number</u>	<u>River Mile</u>
Pool 22 (Cont.)	D16	22.5	323.0R
	D2	22.6	321.0L
	TF320.5	22.7	320.5R
	TF320.1	22.8	320.1R
	D15	22.9	320.1R
	HD12	22.10	320.0L
	D14'	22.11	319.0R
	D12	22.12	317.0R
	HD10	22.13	316.4L
	TF316	22.14	316.0L
	D13	22.15	315.8R
	HD9	22.16	314.4R
	D3	22.17	314.0L
	HD7	22.18	313.8L
	HD6	22.19	313.7R
	D11'	22.20	313.7R
	D11	22.21	313.5R
	HD5	22.22	313.4L
	HD4	22.23	312.1L
	HD3	22.24	312.0R
	D5'	22.25	311.7L
	HD2	22.26	311.5R
	D5	22.27	311.4L
	TF310.7	22.28	310.7R
	D4	22.29	310.0L
	D6	22.30	307.8L
	D7	22.31	306.5L
	D10	22.32	305.3R
	D8	22.33	303.5L
	D9	22.34	303.0R
	HD1'	22.35	303.0L
	HD1"	22.36	303.0R
	HD1	22.37	302.3R
	TF301	22.38	301.0R
	HD300.5L	22.39	300.5L
	TF300.5	22.40	300.5R
	HD300.4R	22.41	300.4R

EXHIBIT 2

DISPOSAL  
ALTERNATIVES  
MATRIXES

## KEY TO DISPOSAL ALTERNATIVES MATRIX

### COLUMN 1: DREDGE CUT

Displays the following information for each dredge cut:

1. Name of Dredge Cut
2. The Frequency of Dredging (i.e., 1/5 = once in 5 years)
3. Volume Dredged Each Dredging Occurrence
4. Approximate Location of Historical Dredging

### COLUMN 2: PRIMARY SITE AND SIZE (A) ACRES



= Primary Site



\* = Beach Nourishment Site (Beach Nourishment Only as Necessary)

These logos are the same as those used on the base maps in Exhibit 2.

Size in acres is depicted for primary sites only, if known. Site acreages vary depending on the use of the material. If a site is to be used for stockpile then the acres are displayed in brackets (i.e., (51.5)).

### COLUMN 3: DISPOSAL SITE

This column displays the number of the disposal site as displayed on the base maps in Exhibit 2.

### COLUMN 4: RIVER MILE

This column displays the approximate location of the disposal site in relation to the navigation channel. Exact locations are found on the base maps.

### COLUMN 5: HABITAT DESCRIPTION (LAND USE)

Self-explanatory. See Section IV-G for definition of habitat description.

### COLUMN 6: IMPACTS IN HABITAT UNITS (+ OR -)

Relative index of impacts, see Section IV-G.

## COLUMN 7: CONDITIONS FOR USE

Self-explanatory.

## COLUMN 8: OBJECTIONS

This column displays any and all objections to use of this site, raised by the GREAT II Team members during the study process.

DSSTF = Disposal Site Selection Task Force

The letter and number codes displayed in this column are listed below by work group.

### A. Commercial Transportation (CTWG)

- 1) The site will physically impede navigation - e.g., by obstructing the channel, necessary off-channel maneuvering space or visibility.
- 2) The site will change the river's flow characteristics so as to impede navigation, to undermine structural foundations, or to impair the placement and/or station keeping of aids to navigation.
- 3) The site will pose a navigation-related hazard to the safety of life and property not covered by Criteria Numbers 1 and 2.
- 4) The site will infringe on existing or proposed barge fleet-ing areas.
- 5) The site will infringe on existing or proposed barge terminal areas.
- 6) The site will involve costs which are greater than would have existed prior to GREAT.

### B. Cultural Resources (CRWG)

- 1) The site has a significant adverse impact on known cultural resources.

### C. Dredged Material Uses (DMUWG)

- 1) No beneficial uses for material.
- 2) No access road to area of disposal.

### D. Dredging Requirements - Material and Equipment Needs (DRWG) (MENWG)

- 1) The site does not reasonably permit complete and permanent containment.
- 2) The site is not within the capability of present (or potential) equipment function.
- 3) The site does not meet a specific states legislation regulating disposal of dredged material.

E. Fish and Wildlife - Side Channel (FWMWG) (SCWG)

A) General

- 1) Site in floodplain
- 2) Runoff will secondarily impact fish and wildlife
- 3) Site in refuge - potential wilderness area
- 4) Site utilized by rare or endangered species
- 5) Human impact - recreation use
- 6) Locally unique habitat
- 7) Buffer zone
- 8) Access impacts

B) Fishery Resources

- 1) Flooded terrestrial areas
  - a) spawning
  - b) rearing
  - c) food production
- 2) Main channel
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production
- 3) Main channel borders
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production
- 4) Tailwaters
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production
- 5) Side channels
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production
- 6) River lakes and ponds
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production

- 7) Sloughs
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production
- 8) River tributary
  - a) spawning
  - b) rearing
  - c) dwelling
  - d) wintering
  - e) food production

C) Benthic Resources

- 1) Mussel bed
- 2) Substantial changes in bottom sediments

D) Wildlife Resources

- 1) Terrestrial communities
  - a) wood duck producing habitat
  - b) mast production zones
  - c) rookeries
  - d) roost sites; eagles - vultures
  - e) browse zones; brushy habitat
  - f) open areas for diversity
  - g) cultivated land
  - h) sand prairie
  - i) mature timber
  - j) unique plant species
  - k) unique animal species including amphibians and reptiles
  - l) nesting habitat
  - m) wintering cover
- 2) Wetlands
  - a) existing or potential emergent zones - shorelands, brood habitat, furbearers
  - b) moist soil food producing area
  - c) roosts - wood duck
  - d) submerged zones - plants
  - e) unique animal species
  - f) amphibians and reptiles habitat
- 3) Open water
  - a) areas used by diving ducks - feeding
  - b) submerged area - plants
  - c) shoreline feeding and cover areas



F. Floodplain Management (FPMWG)

- 1) Site not in floodplain - approved.
- 2) Site in floodplain, but not in floodway or effective flow area.
  - a) Local floodplain ordinance exists: approval only as allowed by local ordinance.
  - b) No ordinance exists: approval subject to state review and conditional stipulations.
- 3) Site in floodway, but not in effective flow area - rejected subject to other considerations.
- 4) Site in effective flow area - rejected subject to other considerations.
- 5) Other considerations
  - a) Sites which are not in the floodway or floodplain of the Mississippi River may not be approved if there is a potential significant loss of storage in specifically designed ponding areas associated with flood control structures.
  - b) Consideration will be given, on a site-by-site basis, to approving sites within an effective flow area or floodway if all material deposited is removed from the area prior to the next seasonal high water.
  - c) Consideration will be given, on a site-by-site basis, to approving sites within an effective flow area or floodway which would involve filling a local depression or pothole to a level no greater than the adjacent ground surface.
  - d) Consideration will be given, on a site-by-site basis, to approving sites within an effective flow area or floodway where material would be used for beach nourishment as recommended by the Recreation Work Group.
- 6) If questions arise during preliminary review as to the location of a site with respect to the floodplain, floodway or effective flow area, or possible impacts on tributary flows, the site is temporarily set aside for further detailed study.

Note: There were objections raised by the FPMWG which were not assigned a code. These are displayed on the matrixes as "FPMWG" only.

G. Public Participation and Information (PPIWG)

Criteria will be public perception and local knowledge of the site by the citizens of the area.

H. Recreation (RWG)

- 1) The site has significant adverse impacts on existing recreational use or developments. These uses include but are not limited to:
  - a) boating
  - b) fishing

- 1) c) hunting  
d) swimming  
e) camping  
f) picnicking  
g) sightseeing  
h) aesthetics-vegetation
- 2) The site has significant adverse impact on proposed recreational use or developments, including the Fish and Wildlife Service's Wilderness Proposals.

I. Sediment and Erosion Control (SECWG)

- 1) The disposal site is an area where velocities are of the magnitude to move dredged material during high stages.
- 2) The site alters or blocks drainage courses.
- 3) The site changes or modifies outlet channel flow.
- 4) The site alters flow in the channel regime.
- 5) The material is being placed such that the fetch and angle of repose of the wind and associated velocities will cause increased erosion.
- 6) Bank protection is economically unfeasible for a site that would require the protection for stability.

COLUMN 9: SPECIAL ACCESS REQUIREMENTS







Not all sites were evaluated to determine special access requirements.

COLUMN 10: OWNERSHIP-MANAGEMENT

Not all sites were evaluated to determine ownership/management.






# DISPOSAL ALTERNATIVES

POOL 11 PAGE 1 of 4

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	11.1  12.5	614.7R	Developed	- 32.5	None	DSSIF: Potential for severe erosion and increase in flood heights.		Private (Proposed Marina)
	11.2 	614.5R	Old field		Needs field inspection to determine if developed.	MENWG: 1		Private
	11.3 	614.5R	Developed		Needs field inspection to determine if developed extensively.	MENWG: 1		Private
	11.4 	614.2R	Developed		Disposal on disturbed areas only. Stock-pile only.	DSSIF: Potential for severe erosion and increased flood heights. FMMWG: A(1) MENWG: 2		Private
Goetz Island 1/5 25,000 yd <sup>3</sup> RM: 612.3-613	11.5  *	612.3R	Dredged material beach HD: Historic Disposal Site		Only small amounts to maintain beach as determined by OSIT.	DSSIF: Potential for severe erosion and increased flood heights.		Federal
St. Louis Woodyard 1/5 25,000 yd <sup>3</sup> RM: 610-612.3	11.6  *	610.5L	Dredged material beach bordered by lowland hardwoods HD: Historic Disposal Site	-25	Only small amounts to maintain beach as determined by OSIT. Keep material out of rip-rap. RWG beach request.	DSSIF: Minor adverse impacts on fish and wild-life resources.		Federal (UNRWLFR)







# DISPOSAL ALTERNATIVES

POOL 11 PAGE 2 of 4

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (#or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Turkey River 1/5 25,000 yd <sup>3</sup> RM: 609-610	 11.7	609.0L	Dredged material HD: Historic Disposal Site		Only small amounts to maintain beach as determined by OSIT.	DSSTF: Potential for severe erosion and increased flood heights.	Federal (UMRWLFR)
	 11.8	607.7L	Developed and old field		Barging required. Provide for permanent stockpile area. Material must be removed before next spring high water.	DSSTF: Potential for increased flood heights. FPMWG: 3, 5a FMMWG: A(1)	Federal (UMRWLFR)
	 11.9	607.6L	Agricultural field	- 162.5 (S-34.8)	Barging required. Provide permanent stockpile area.	MENWG: 2	Private
	 11.10	607.6R	Agricultural field		Placement out of floodplain of Turkey River. Confine to area east of railroad tracks.	DSSTF: Potential for severe erosion and increased flood heights. FPMWG: 4 FMMWG: All criteria MENWG: 1, 2	Federal (UMRWLFR)
	 11.12	606.5L	Developed		Only small amounts to maintain beach as determined by OSIT. Further investigation and site design should be accomplished.	FPMWG: 4 FMMWG: A(1, 2, 5), B(3), D(1f, 1i) MENWG: 2	Public (Cassville City Park)





# DISPOSAL ALTERNATIVES

## POOL 11 PAGE 3 of 4

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Hurricane Island 1/6 15,000 yd <sup>3</sup> RM: 598-599	11.13 	604.5L	Gravel pit		Secondary handling impacts must be considered before use.	MENWG: 2	Trucking required	
	11.14 	604.2L	Gravel pit		Secondary handling impacts must be considered before use.	MENWG: 2	Trucking required	
	11.15 	602.8R	Agricultural		Contained stockpile	FMMWG: A(1) MENWG: 2	Trucking required	
	11.16  6.4 (S1.5)	599.8R	Developed	- 16.7 (S-2.4)	Keep material from entering pond. Material must be removed before spring high water.	DSSTF: Potential for severe erosion and increased flood heights. Adverse impacts on fish and wildlife resources. FPMWG: 2, 5a FMMWG: A(1, 2, 5), B(6), D(2d) MENWG: 1(a)	Inland transport required across one set of railroad tracks.	Private (Anthony's Boat Dock)
	11.17  14.9 (S3.5)	596.0R	Developed	- 38.7 (S-5.6)	Stockpile site. Confine to area already disturbed. Southside of creek only.	DSSTF: Potential for severe erosion and increased flood heights. FPMWG: 2, 5a FMMWG: A(1, 2, 5), B(6), D(2d) RMG: 1(a)	Inland transport required across one set of railroad tracks and one gravel road.	Private (Finley's Landing)
Finleys Landing 1/6 35,000 yd <sup>3</sup> RM: 595.5-596.5	11.18 	595.8R	Dredged material beach bordered by lowland hardwood disposal site		Only small amounts to maintain beach as determined by OSIT. Material placed west of stream bed near east end of site. RMG beach request.	DSSTF: Potential for severe erosion and increase in flood heights. FMMWG: D(1a, 1d, 2a, 2d, 3b, 3c)		Federal

# DISPOSAL ALTERNATIVES

POOL 11 PAGE 4 of 4

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION-LAND USE	IMPACTS IN HABITAT UNITS (or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	11.19 	594.5L	Unknown		Secondary handling impacts must be considered before use.		Trucking required	
	11.20 	589.4R	Developed			FPMWG: 4 FMMWG: A(1, 2, 5), B(1, 6, 7), D2a, 2d MENWG: 2 RWG: 1(e, f)		Public (County Park)
	11.21 	589.3R	Developed		Depends on level of development. Prevent impacts of return water flows.	MENWG: 2	Trucking required	
	11.22 	585.0L	Gravel pit			MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 1 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	12.1	581.5L	Dredged material and lowland hardwoods HD: Historic Disposal Site	Beach nourishment as found necessary by OSIT. No expansion. Endangered species consultation required.		FWMWG: A(1, 2, 4), B(3), C(1), D(3)		
	12.2	581.0R	Lowland hardwoods			FWMWG: A(1, 2, 5, 6, 7), B(1, 2, 3), C(1), D(1a, 1b, 1f, 1k, 2a, 2b, 2c, 2d)		
	12.3	580.9R	Disturbed old field (inactive landfill)			FWMWG: A(1, 2, 5, 6, 7), B(6), D(1f, 2a, 2b, 2c, 2d)		Private
	12.4	579.8L	Lowland hardwoods HD: Historic Disposal Site					
	12.5	579.5R	Developed		Stockpile material		Barging required - 15 miles from cut.	Private (Molo Sand and Gravel)
	12.6	579.2L	Old field			CRWG: 3 FPMWG: 4 FWMWG: A(1, 2, 5), B(1e, 1f, 1g)		

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 2 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	12.7	579.0L	Dredged material			FPMWG: 4 FPMWG: A(1, 2, 5), D(1e, 1f, 1g) MENWG: 2		
	12.8	578.0R	Old field			MENWG: 2 RWG: 1(g)		
	12.9	578.0R	Upland hardwoods			FPMWG: 2, 5a FPMWG: A(1, 2), D(1b, 1e) MENWG: 2 RWG: 1(g)		
	12.10	578.0R	Disturbed old field			CRWG: 3 FPMWG: 4 FPMWG: A(1, 2, 5, 7), B(1a, 1b, 1c), D(1e, 1f, 1g) MENWG: 2		
	12.11	577.5R	Agricultural field bordered by lowland hardwoods			CRWG: archaeological site present FPMWG: 4 FPMWG: A(1, 2), D(1e, 1f, 1g) MENWG: 2 RWG: 1(g)		
	12.12	577.1L	Agricultural field			CRWG: 2 FPMWG: 4 FPMWG: A(1, 2, 5, 7), D(1e, 1f, 1g, 1k) MENWG: 2		



# DISPOSAL ALTERNATIVES

## POOL 12 PAGE 3 of 10

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL SITE	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	12.13	576.9R	Agricultural field		CRWG: 2 FPMWG: 5a MENWG: 2 RWG: 1(g)				
	12.14	576.2L	Agricultural field		FPMWG: A(1, 2, 5, 7), D(1a, 1f, 1g, 1k)				
	12.15	576.0L	Pasture and gravel pit		CRWG: 2 FPMWG: A(1, 2, 5, 7), D(1e, 1f, 1g, 1k) MENWG: 2				
	12.16	575.9L	Pasture		CRWG: 2 FPMWG: A(1, 2, 5, 7), D(1e, 1f, 1g, 1k) MENWG: 2				
	12.17	575.5L	Agricultural field		CRWG: 1 FPMWG: A(1, 2, 5, 7), D(1e, 1f, 1g, 1k) MENWG: 2				
	12.18	575.5L	Agricultural field		CRWG: 2 FPMWG: A(1, 2, 5, 7), D(1e, 1f, 1g, 1k) MENWG: 2				

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 4 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	12.19	574.6L	Agricultural field			CRWG: 2 FPMWG: 2, 5a FWMWG: A(1, 2, 5, 7), D(1e, 1f, 1g, 1k) MENWG: 2		
	12.20	573.8R	Agricultural field			CRWG: 2 FPMWG: A(1, 2), D(1f, 1g) MENWG: 2 RWG: 1(g)		
	12.21	573.8R	Developed			FPMWG: 3, 5a FWMWG: A(1, 2, 5), D(1c, 1e, 2a) MENWG: 2 RWG: 1(a)		Public (Dubuque County Conservation Commission)
	12.22	573.5R	Wetlands			FPMWG: 4 FWMWG: A(1, 2, 5, 7), B(1a, 1b, 1c), D(1e, 1f, 2a, 2b, 2d) MENWG: 2		
	12.23	572.5R	Lowland hardwoods HD: Historic Disposal Site					
	12.24	570.4L	Old field			CRWG: 2 FPMWG: 5a MENWG: 2		

# DISPOSAL ALTERNATIVES

## POOL 12 PAGE 5 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	12.25	568.7R	Agricultural field			CRWG: 2 MENWG: 2		
	12.26	568.5R	Old field			CRWG: 2 MENWG: 2		
	12.27	568.5R	Dredged material beach HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights, adverse impacts on fish and wild-life resources.		Private
	12.28	568.2L	Agricultural field			CRWG: 2 FPMWG: 5a FPMWG: A(1, 2), B(8a, 8b, 8c, 8e), D(1b, 1e, 1f, 1g, 1e) MENWG: 2		
	12.29	567.8R	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wild-life resources.		Private
	12.30	566.5L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife resources. CRWG: 2 FPMWG: 5a FPMWG: A(2), D(1a, 1e, 1f, 1g) MENWG: 2		Private

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 6 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Gordon's Ferry 1/10 25,000 yd <sup>3</sup> RM: 565-566	12.31	566.5L	Lowland hardwoods			DSSTF: Potential for severe erosion and increased flood heights. Adverse impacts on fish and wildlife resources.		Federal
	12.32	566.3L	Parking lot	- 16.5 (S-4)	Contain material in parking lot. Prevent material from entering backwaters.	DSSTF: Potential for severe erosion. CRWG: 2 FPMWG: 4 FMMWG: A(1, 2) MENWG: 2	Crosses UMRWLFR	Private (Galena Boat Club)
	12.33	566.0L	Open water (main channel border) HD: Historic Disposal Site		Place water in natural scour hole. Monitor. Turbidity should not be greater than during high water periods.	DSSTF: Potential for severe erosion and increased flood heights. Adverse impacts on fish and wildlife resources.		Federal
	12.34	563.0L	Old field			CRWG: 3 FPMWG: 5a FMMWG: A(2), B(8a, 8b, 8c, 8e), D(1b, 1f) MENWG: 2		
	12.35	563.0L	Lowland hardwoods and wetlands			CRWG: 3 FPMWG: 3, 5a FMMWG: A(2), B(8a, 8b, 8c, 8e), D(1b, 1f) MENWG: 2		
	12.36	562.7L	Agricultural field			CRWG: 1 FPMWG: 4 FMMWG: A(1, 2, 3), D(1e, 1f, 1g), D(2a, 2b, 2d) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 7 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	12.37	562.1R	Lowland hardwoods			MENWG: 2		
	12.38	561.8L	Agricultural field			CRWG: 2 FPMWG: A(1, 2, 5), D(1b, 1e, 1f, 1g) MENWG: 2		
	12.39	561.5L	Old field			CRWG: 2 MENWG: 2		
	12.40	561.5L	Old field			CRWG: 2 FPMWG: 3, 5a FPMWG: A(1, 2, 5), D(1b, 1e, 1f, 1g) MENWG: 2		
	12.41	561.2L	Lowland hardwoods			FPMWG: 2 FPMWG: A(1, 2, 5, 7), B(6b, 6e), D(1b, 1f, 2a, 2b, 2c, 2d) MENWG: 2		
	12.42	560.7L	Old field			CRWG: 2 FPMWG: 2, 5a FPMWG: A(1, 2), D(1e, 1f, 1g, 2a, 2b, 2d) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 8 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN (CONDITIONS FOR USE HABITAT UNITS (for -))	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	12.43	560.6L	Lowland hardwoods and wetlands		FPMWG: 2, 5a FWMWG: A(1, 2), B(7e), D(1a, 1b, 1e, 1f, 2a, 2b, 2d, 3a) MENWG: 2		
	12.44	560.2R	Old field		FPMWG: 4, 5a FWMWG: A(1, 2, 3, 7), B(7a, 7b, 7c, 7e), D(1b, 1c, 2a) MENWG: 1 RWG: 1(a, b)		
	12.45	560.0R	Agricultural field		CRWG: 2 MENWG: 1		
	12.46	559.9R	Lowland hardwoods		FPMWG: A(1, 2), D(1e, 1f, 1g) MENWG: 1		
	12.47	559.5R	Old field		CRWG: 3 FPMWG: 2, 5a FWMWG: A(2), B(8a, 8b, 8c), D(1f, 1g, 2b) MENWG: 1		
	12.48	559.2L	Old field		CRWG: 3 FWMWG: A(1, 2), B(8c, 8e), D(1b, 1i, 2a) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 12 PAGE 9 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(*or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	12.49	559.2L	Lowland hardwoods			CRWG: 3 FPMWG: 5a FWMWG: A(1, 2), B(8a, 8e), D(1b, 1i, 2a) MENWG: 2		
	12.50	558.8L	Lowland hardwoods			CRWG: 3 FPMWG: A(1, 2, 3, 5), D(1b, 1e, 1i) MENWG: 2 RWG: 1(g)		
	12.51	558.4R	Inactive sand quarry pits		Unload with clamshell	DSSIF: Adverse impacts on fish and wildlife resources. FPMWG: 2 FWMWG: A(2), B(6c, 6d, 6e) MENWG: 1	May have to dredge a slip. Barging - 8 miles - 60' rise.	Private (Bellevue Sand and Gravel)
	12.52	557.5L	Agricultural field			CRWG: 2 FPMWG: 5a MENWG: 2		
	12.53	557.4R	Old field			CRWG: 1 FPMWG: 2 FWMWG: A(1), B(1, 6) MENWG: 2		
	4	557.1L	Agricultural field			CRWG: 2 FPMWG: 5a MENWG: 2		

10 of 10

CRWG: 2  
MENWG: 2



# DISPOSAL ALTERNATIVES

POOL 13 PAGE 1 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN (CONDITIONS FOR USE HABITAT UNITS (for -))	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	13.1	555.2R	Agricultural field		DRWG: 2 FPMWG: A(2, 8), D(1e, 1f, 1g) MENWG: 2 RWG: 1(g)		Private
	13.2	554.8L	Agricultural field		CRWG: 2 DRWG: 2 MENWG: 2		
	13.3	554.8R	Agricultural field		DRWG: 2 MENWG: 2		
	13.4	554.6R	Agricultural field		DRWG: 2 FPMWG: A(2, 5, 8), D(1f, 1g) MENWG: 2 RWG: Housing development		Private
	13.5	554.6R	Sand bar island HD: Historic Disposal Site		DSSTF: Potential for severe erosion, adverse impact on fish and wildlife. Increase in flood heights.		Federal
	13.6	552.9R	Developed and low-land hardwoods	-111.3 (S-25.3)	CRWG: 2 FPMWG: A(2, 4), B(1), D(1a, 1b, 1c, 2a)		Federal (COE Public Use Area)
	12.5 (S2.5)			Nourish beach as necessary. Possible stockpile area. Do not encroach into wetlands, minimize runoff. OSIT needs to set site parameters. Maintain swales. Keep beach to 3 feet. Request.			

# DISPOSAL ALTERNATIVES

## POOL 13 PAGE 2 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Pleasant Creek 1/10 25,000 yd <sup>3</sup> RM: 552.5-553	13.7	552.8R	Agricultural field			CRWG: 2 MENWG: 2 RWG: 2		
	13.8	552.8R	Lowland hardwoods HD: Historic Disposal Site		RWG beach request	DSSTP: Potential for severe erosion, adverse impact on fish and wildlife, increase in flood heights.		Federal (UNRWLFR)
	13.9	552.6R	Pond			DRWG: 2 MENWG: 2		Private
	13.10	552.5R	Old field			CRWG: 2 DRWG: 2 MENWG: 2		Private
	13.11	552.1R	Agricultural field			CRWG: 2 DRWG: 2 FWMWG: A(7, 8), D(1f, 1g, 2a) MENWG: 2		
	13.12	552.1R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(7, 8), D(1f, 1g, 2a) FWMWG: A(7, 8), D(1f, 1g, 2a) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 3 of 21

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	13.13	552.1R	Old field			CRWG: 2 DRWG: 2 FPMWG: A(7, 8), D(1f, 1g, 2a) MENWG: 2 RMG: New road		
	13.14	551.6R	Agricultural field			DRWG: 2 FPMWG: Access through refuge MENWG: 2		
	13.15	551.6R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(2, 5, 8), D(1f, 1g, 2a) MENWG: 2		
	13.16	551.1R	Lowland hardwoods			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 4, 5, 8), B(6, 7), D(1a, 1b, 1d, 1f) MENWG: 2 RMG: 1(c, g)		
	13.17	551.0R	Lowland hardwoods			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 4, 5, 8), B(6, 7), D(1a, 1b, 1d, 1f) MENWG: 2 RMG: 1(c, g)		
	13.18	551.0L	Dredged material beach HD: Historic Disposal Site		Prevent material from entering backwaters. Revegetate. Nourish beach only as necessary. Minimize runoff impacts.	FPMWG: A(1), D(1f, 1L)		Federal

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 4 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Sand Prairie 1/5 20,000 yd <sup>3</sup> RM: 549.8- 550.8	13.19	550.9R	Lowland hardwoods HD: Historic Disposal Site				Federal
	13.20	550.7R	Dredged material HD: Historic Disposal Site				Federal
	13.21	550.6R	Dredged material HD: Historic Disposal Site				Federal
	13.22	550.3L	Agricultural field		CRWG: 2 DRWG: 2 MENWG: 2		
	13.23	549.8R	Lowland hardwoods HD: Historic Disposal Site				Federal
	13.24	549.4R	Agricultural field		CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 5, 8), D(1f, 1g, 2a, 2b) FWMWG: 2 MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 5 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	13.25	549.0R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(2, 8), D(1f, 1g) MENWG: 2		
	13.26	548.9L	Mowed grass	-20 (S-4)	Place above 100 year flood frequency boundary.		Inland transport required over 40 foot rise and developed land.	Federal (Savanna Proving Grounds)
	13.27	548.9R	Lowland hardwoods			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 4, 5, 8), D(1d, 1e, 1f) MENWG: 2 RWG: 1(h)		
	13.28	548.5R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 4, 8), D(1e, 1f, 1g) MENWG: 2 RWG: 1(c)		Private and State
	13.29	548.2R	Agricultural field			DRWG: 2 FPMWG: D(1d) MENWG: 2	Crosses UMRWLF	
	13.30	548.2R	Dredged material beach and lowland hardwoods HD: Historic Disposal Site			DSSTF: Increase in flood heights, not best site for levee maintenance use.		Federal


# DISPOSAL ALTERNATIVES

POOL 13 PAGE 6 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Maquoketa River 1/5 35,000 yd <sup>3</sup> RM: 547.5- 548.8	13.31	548.1R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(2, 4, 8), D(1e, 1f, 1g) MENWG: 2		
	13.32	548.1R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 4, 8), D(1e, 1f, 1g) MENWG: 2		Private
	13.33	547.9R	Agricultural field			CRWG: 1 DRWG: 2 FPMWG: A(1, 2, 3, 4, 8), D(1e, 1f, 1g) MENWG: 2 RWG: 1(c)		Public (State of Iowa) and Private
	13.34	547.9R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 4, 8), D(1e, 1f, 1g) MENWG: 2		Private
	13.35	547.8L	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion, adverse impacts on fish and wildlife, increase in flood heights.		
	13.36	547.8L	Agricultural field		Protect creek	CRWG: 1 DRWG: 2 MENWG: 2		


# DISPOSAL ALTERNATIVES

POOL 13 PAGE 7 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (± or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	13.37  23.8 (S6)	547.7R	Levee, lowland hardwoods and old borrow pit HD: Historic Disposal Site	-161.8 (S-87.6)	Investigate placement in borrow pits on inside of levee. Material used for levee maintenance. Consider overdepth dredging to increase percentage of solids.			Outside Levee: Federal (UMR WLFR) and Inside Levee: State (Green Island Wildlife Mgmt. Area)
	13.38	547.4R	Lowland hardwoods HD: Historic Disposal Site					
	13.39	547.3L	Dredged material HD: Historic Disposal Site			DSSTP: Potential for severe erosion, adverse impact on fish and wildlife, increase in flood heights.		
	13.40	547.3R	Agricultural field, small creek, riparian vegetation			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 8), B(1a, 1b), D(1a, 1e, 1f, 1g) MENWG: 2 RWG: 1(c)		
	13.41	547.1L	Dredged material HD: Historic Disposal Site			DSSTP: Potential for severe erosion, adverse impact on fish and wildlife, increase in flood heights.		
	13.42	547.1R	Lowland hardwoods HD: Historic Disposal Site					

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 8 of 21

PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
 <p>Maquoketa River Lower 1/10 25,000 yd<sup>3</sup> RM: 546-547.5</p>	13.43	546.8R Lowland hardwoods HD: Historic Disposal Site					
	13.44	546.5R Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(2) MENWG: 2		
	13.45	546.5R Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 5, 8), D(1g, 1f) MENWG: 2		
	13.46	546.3R Levee and old borrow pits HD: Historic Disposal Site	-51 (S-43.8)	Stockpile in borrow pits on inside of levee for use in levee maintenance.		Crosses UMR/LFR	State (Green Island Wildlife Management Area)
	13.47	546.2R Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 8), B(8), D(1b, 2a) MENWG: 2 RWG: 1(g)		Private
	13.48	546.0L Agricultural field			CRWG: 2 FPMWG: D(1d)		



# DISPOSAL ALTERNATIVES

POOL 13 PAGE 9 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	13.49	545.9R	Lowland hardwoods HD: Historic Disposal Site					Federal
	13.50	545.8R	Lowland hardwoods HD: Historic Disposal Site					Federal
	13.51	545.7R	Lowland hardwoods HD: Historic Disposal Site					Federal
	13.52	545.6R	Lowland hardwoods HD: Historic Disposal Site					Federal
	13.53	544.9R	Wetland			DSSTF: Extensive review and study required.		
	13.54	544.5L	Agricultural field			CRWG: 2 DRWG: 2 FWMWG: A(2, 8), D(1e, 1f) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 10 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Island 257 Lower 1/10 30,000 yd <sup>3</sup> RM: 544-545	13.55	544.5L	Dredged material beach HD: Historic Disposal Site		Prevent material from entering backwaters. Revegetate.	FMMWG: A(1, 2, 5), D(3c)		Federal (UMRWLFR)
	13.56	544.4L	Agricultural field			CRMG: 1 FMMWG: A(8)		
	13.57	544.2L	Agricultural field					
	13.58	542.8L	Agricultural field			CRMG: 2 DRWG: 2 MENWG: 2		Private
	13.59	542.8L	Old field			CRMG: 2 DRWG: 2 FPMWG: A(1, 2, 8), B(1, 6, 7), D(1e, 1f, 2a, 2b, 2c) MENWG: 2 RWG: 1(e, f, g)		Private
	13.60	541.1L	Dredged material beach and low-land hardwoods HD: Historic Disposal Site		Prevent material from entering backwaters. Revegetate.	FMMWG: A(1, 2, 5)	Crosses UMRWLFR	Federal (UMRWLFR)


# DISPOSAL ALTERNATIVES

## POOL 13 PAGE 11 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Lainesville Lower 1.5/10 35,000 yd <sup>3</sup> RM: 540.5-541	13.61	540.9R	Aquatic (main channel border) HD: Historic Disposal Site					
	13.62	540.8R	Developed		Protect creek.	DRWG: 2 MENWG: 2		
	13.63	540.8R	Sand quarry		Water return through existing drainage system. Retard re-turn flows.	DRWG: 2 FMMWG: A(8) MENWG: 2	Requires inland transport across two sets of railroad tracks and one gravel road.	Private
	13.64	540.5R	Aquatic (main channel)	Unknown	Thalweg disposal only.	FMMWG: A(1, 2), D(2d)		Federal (UNRWLFR)
Savanna Bay Light 2/10 25,000 yd <sup>3</sup> RM: 538.8-539.8	13.65	539.9L	Agricultural field			CRWG: 2 DRWG: 2 FMMWG: A(1, 2, 3, 4, 6), D(1e, 1f, 1g, 2a, 2b) MENWG: 2 RWG: 1(g), park buffer		State
	13.66	539.5L	Dredged material bordered by low-land hardwoods HD: Historic Disposal Site		Use only if NO alternative with lesser impact is available. Prevent material from entering backwaters. Nourish only as necessary. Additional cultural reconnaissance required if site to be expanded.	FMMWG: A(1), D(2d)		Federal (UNRWLFR)

# DISPOSAL ALTERNATIVES

## POOL 13 PAGE 12 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	13.67	539.0	Aquatic (main channel)		Thalweg disposal only. Subject to results of study. Notify downstream water users.	FPMWG: A(1, 2), B(3a, 3b, 3c, 3d, 3e), D(2a)		Federal
	13.68  12.5 (S2.5)	539.0L	Developed	- 32.5 (S-4)	Remove material before spring high water.			
	13.69	537.0L	Developed		Barging required. Unload with clamshell. Stockpile.		Unloading at commercial dock.	
	13.70	536.9L	Wetlands			CRWG: 3 DRWG: 2 FPMWG: A(1, 2, 5, 6, 7), B(6, 7), D(2a, 2d) MENWG: 2		
	13.71	536.5R	Old field and agricultural field			CRWG: 3 DRWG: 2 FPMWG: A(1, 2), D(1a, 1b, 1g, 2a, 2d) MENWG: 2 RWG: 1(c, g), shooting range		
	13.72	535.9R	Agricultural field			CRWG: 2 DRWG: 2 MENWG: 2		



# DISPOSAL ALTERNATIVES

## POOL 13 PAGE 13 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	13.73	535.8R	Old field		DRWG: 2 MENWG: 2		
	13.74	535.8R	Lowland hardwoods		DRWG: 2 MENWG: 2		
	13.75	535.8R	Aquatic (back-water lake)		DRWG: 2 FWMWG: A(1, 2, 7), B(6), D(1a, 2a, 2d, 3a, 3b, 3c) MENWG: 2 RWG: snowmobile site		
	13.76	535.2R	Agricultural field		CRWG: 2 DRWG: 2 FWMWG: A(1, 2, 8), D(1e, 1f) MENWG: 2 RWG: potential recreational area		
	13.77	534.9L	Old field and lowland hardwoods		DRWG: 2 MENWG: 2		
	13.78	534.9L	Old field		DRWG: 2 MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 14 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	13.79	534L	Developed		DRWG: 2 MENAG: 2		
	13.80	534.0L	Breeched levee	(See TF533.8)	Repair this levee after TF533.8 and 2D9, Stockpile at TF3.	May necessitate dredging access.	Federal (UMRWLFR)
	13.81	533.8L	Breeched levee	+110 and unknown gains in habitat value through wildlife management	Repair levee. Stockpile necessary material at TF3.	May necessitate dredging access.	Federal (UMRWLFR)
12.5	13.82	533.5L	Dredged material HD: Historic Disposal Site		DSSTF: Potential for severe erosion, adverse impact on fish and wildlife, increase in flood heights.		Federal
	13.83	533.2L	Dredged material HD: Historic Disposal Site				Federal
	13.84	533.2L	Dredged material HL: Historic Disposal Site		DSSTF: Potential for severe erosion, adverse impact on fish and wildlife, increase in flood heights.		Federal


# DISPOSAL ALTERNATIVES

POOL 13 PAGE 15 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Sabula Lower 2/10 25,000 yd <sup>3</sup> RM: 532.5-533.5	13.85	533.1L	Lowland hardwoods			DRWG: 2 FPMWG: A(1, 2, 3, 5), D(1e, 1g, 1i) MENWG: 3		
	13.86	533L	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion, adverse impact on fish and wildlife, increase in flood heights.		
	13.87	532.9L	Levee HD: Historic Disposal Site		Keep material on outside of levee.	FPMWG: A(1)		Federal (UMRWLFR)
	13.88	532.4L	Levee		Stockpile for levee repair.		Requires crossing of one levee.	Federal (UMRWLFR)
	13.89	532.1L	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2), D(1f, 1g) MENWG: 2		
	13.90	531.6R	Lowland hardwoods			CRWG: 3 DRWG: 2 FPMWG: A(1, 2, 3, 4, 5), B(5), D(1a, 1b, 1e, 1f, 2a, 2c) MENWG: 2 RMG: 1(g)		Elk River Waterfowl Refuge

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 16 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Dark Slough 1/10 20,000 yd <sup>3</sup> RM: 531- 532	13.91 	531.5L	Breached levee	+ 19.5	Levee repair. Stockpile necessary material at TF3.	DRWG: 2 MENWG: 2	May necessitate dredging access.	Federal (UMRWLFR)
	13.92	531.5R	Old field			CRWG: 3 DRWG: 2 FPMWG: A(1, 2, 3, 4, 5), B(1, 5), D(1a, 1b, 1e, 1f, 2a, 2c) MENWG: 2		
	13.93	531.4L	Dredged material beach HD: Historic Disposal Site		Keep material out of wetlands.			Federal (UMRWLFR)
	13.94	531.1R	Agricultural field			CRWG: 2 DRWG: 2 MENWG: 2		Private
	13.95	530.3L	Old field			CRWG: 3 DRWG: 2 MENWG: 2		
	13.96	530.2L	Sand quarry			CRWG: 3 DRWG: 2 MENWG: 2		



# DISPOSAL ALTERNATIVES

## POOL 13 PAGE 17 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	13.97	529.2L	Agricultural field			CRWG: 4 DRWG: 2 MENWG: 2		Private
	13.98	528.8R	Agricultural field and lowland hardwoods			CRWG: 2 DRWG: 2 MENWG: 2		
	13.99	528.8L	Old field			CRWG: 1 DRWG: 2 FWMWG: A(1, 2), D(1g, 1f) MENWG: 2		
	13.100	528.6L	Sand prairie			DRWG: 2 FWMWG: A(1, 2, 3, 5, 6), D(1f, 1h, 1j) MENWG: 2		
	13.101	528.5R	Agricultural field			CRWG: 2 DRWG: 1, 2 FWMWG: A(1), B(1a), D(1g)		
	13.102	528.2R	Agricultural field			CRWG: 2 DRWG: 2 FWMWG: A(8) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 18 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION-LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	13.103	528.2R	Agricultural field		CRWG: 2 DRWG: 2 MENWG: 2		
	13.104	528.2R	Pond		DRWG: 2 FMMWG: A(1, 5, 8), B(6a, 6b, 6c, 6d, 6e), D(1a, 1d, 1e, 2a, 2b, 2c, 2d) MENWG: 2 RWG: 1(b, c, g)		Elk River Waterfowl Refuge
	13.105	527.4R	Old field and quarry		CRWG: 3 DRWG: 2 FMMWG: A(1, 2), D(1e, 1f, 1g) MENWG: 2		
	13.106	527.2R	Sand quarry		DRWG: 2 MENWG: 2		
	13.107	527.2R	Agricultural field		CRWG: 2 DRWG: 2 FPMWG: A(1, 2), D(1e, 1f, 1g) MENWG: 2		
	13.108	527.0R	Agricultural field		CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 5), D(1f, 1g) MENWG: 2		

# DISPOSAL ALTERNATIVES

## POOL 13 PAGE 19 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	13.109	526.8R	Lowland hardwoods			DRWG: 2 MENWG: 2		
	13.110	526.7R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2), D(1f, 1g) MENWG: 2		
	13.111	526.5R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2), D(1f, 1g) MENWG: 2		
	13.112	526.4R	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 5), D(1f), D MENWG: 2		
	13.113	525.9L	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 3, 5), D(1f, 1h, 1j) MENWG: 2 RWG: 1(g), sand prairie		
	13.114	525.9L	Lowland hardwoods			CRWG: 1 DRWG: 2 FPMWG: A(1, 2, 5), D(1a, 1b, 1e, 1f, 2a, 2e) MENWG: 2 RWG: 1(e, f)		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 20 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION-LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Pome de Terre 1/10 35,000 yd <sup>3</sup> RM: 525.0-525.5	13.115	525.6R	Developed and low-land hardwoods			CRWG: 2 DRWG: 2 FPMWG: A(1, 2, 5), D(1e, 1f) MENWG: 2 RWG: 1(a, e, f)		
	13.116	525.5L	Aquatic (stump field)		Recreational boater refuge site. Design to minimize day to day recreation use. OSIT should develop site plan. Construct 11 feet above flat pool.	FWMWG: A(1, 2), B(5a-e), D(2a)		Federal (UMRWLFR)
	13.117	525.5L	Aquatic (main channel border) HD: Historic Disposal Site		Restrict material to channel side. Spread disposal out.			Federal (UMRWLFR)
	13.118	524.5R	Aquatic (stump field)	Unknown	Recreational boater refuge site. Design to minimize day to day recreation use. OSIT should develop site plan. Construct 11 feet above flat pool.			
	13.119	524.5L						
	13.120	524.3L	Agricultural field			CRWG: 2 DRWG: 2 FPMWG: A(1, 2), D(1f, 1g, 2a, 2b, 2d) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 13 PAGE 21 of 21

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	13.121	524.08	Old field		CRWG: 2 DRWG: 2 MENWG: 2		
	13.122	523.91	Old field		CRWG: 2 DRWG: 2 FWMWG: A(1, 2, 5, 6, 7), D(1e, 1h, 1j) MENWG: 2		
	13.123	523.8	Developed		DRWG: 2 MENWG: 2		
	13.124	523.51	Lowland hardwoods		DRWG: 2 FWMWG: A(1, 2, 5), D(1e) MENWG: 2		
	13.125	523.41	Agricultural field		CRWG: 2 DRWG: 2 FWMWG: A(1, 2, 5), D(1f, 1g) MENWG: 2		

AD-A096 443

ARMY ENGINEER DISTRICT ROCK ISLAND IL

F/6 13/2

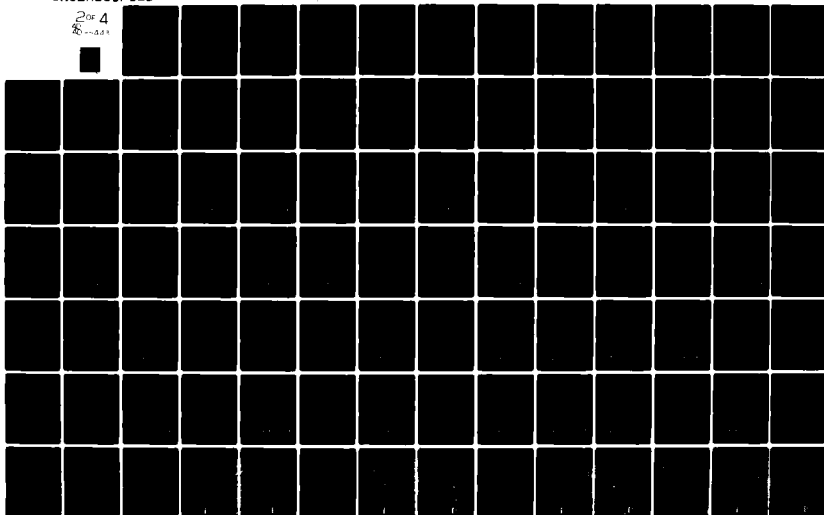
GREAT RIVER ENVIRONMENTAL ACTION TEAM (GREAT II), UPPER MISSISS--ETC(U)

DEC 80

UNCLASSIFIED

NL

2 of 4  
50-101




# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 1 of 18

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Joyce Island 1/10 20,000 yd <sup>3</sup> RM: 518.5- 519.5	14.1	523.0L	Lowland hardwoods and wetlands			CRWC: 3 MENWG: 2		
	14.2	519.5R	Dredged material beach and low-land hardwoods		Prevent material from entering backwaters and revegetate.			Federal
	14.3	519.2L	Dredged material and lowland hardwoods HD: Historic Disposal Site					
	14.4	518.9R	Developed HD: Historic Disposal Site					
	14.5	518.6L	Dredged material beach HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	14.6	518.5L	Sand pit	-41 (S-10.6)	Need additional cultural data.			Private (Redi-Nix)

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 2 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (for -)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Below Clinton R.R. Bridge 1/20 10,000 yd <sup>3</sup> RM: 517-517.8	14.7	517.5R	Aquatic (backwater slough)		CRWG: 3 FPMWG: A(1e, 5, 6, 7, 8), B(1, 6), D(1a, 1b, 1e, 2a, 2b, 2c, 2d, 3a) MENWG: 2		
	14.8	517.5R	Lowland hardwoods and developed				
	14.9	517.3L	Agricultural field		DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FPMWG: 2 FPMWG: A(1, 2, 8) CRWG: 2 D(1f, 1g) MENWG: 2		Private
 2.5	14.10	517.2R	Lowland hardwoods HD: Historic Disposal Site	-24.3	Additional cultural data required. Search for beneficial use in Clinton.		Private
	14.11	516.7R	Lowland hardwoods HD: Historic Disposal Site		Prevent material from entering backwaters and revegetate. Additional cultural data required.		Private
	14.12	516.4L	Old field		CRWG: 2 FPMWG: A(1, 2, 8), D(1f, 1g) MENWG: 2		



# DISPOSAL ALTERNATIVES

POOL 14 PAGE 3 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	14.13	516.31	Lowland hardwoods HD: Historic Disposal Site		DSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FWMWG: 2		Federal
	14.14	516.11	Old field		CRWG: 2 FWMWG: A(1, 2, 8), D(1f, 1g) MENWG: 2		
42.5	14.15	516.11	Lowland hardwoods	-429.8	CRWG: 2 FPMWG: A(1, 2, 3, 8), B(5), D(1a, 1b, 1e, 1f, 1g, 1i, 2a, 2c, 2d, 3a, 3b, 3c) MENWG: 2 RWG: 1(g)		
	14.16	516.01	Agricultural field		DSTF: Adverse impact on fish and wildlife. CRWG: 2 FPMWG: A(1, 2, 8), D(1e, 1f, 1g) MENWG: 2	Inland transport required across developed land, one paved road, and one set of railroad tracks.	Private
	14.17	515.61	Old field		DSTF: Adverse impact on fish and wildlife. CRWG: 2 FPMWG: A(1, 2, 8), D(1e, 1f, 2a, 2b) MENWG: 2		Private
	14.18	515.51	Agricultural field		DSTF: Adverse impacts on fish and wildlife. CRWG: 2		Private


# DISPOSAL ALTERNATIVES

POOL 14 PAGE 4 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Beaver Slough 1/4 30,000 yd <sup>3</sup> RM: 513.3-517.5	14.19	515.0L	Agricultural field		Stockpile	FWMG: A(8), D(1g)	Private
	14.20	514.8L	Lowland hardwoods		Stockpile	CRWG: 3 FPMWG: A(1, 2, 8), D(1a, 1b, 1e, 1f) MENWG: 2 RWG: 1(g)	
	14.21	514.8L	Agricultural field			CRWG: 3 FPMWG: A(1, 8), D(1g) MENWG: 2	
Albany 1/5 30,000 yd <sup>3</sup> RM: 513-514	14.22	514.3L	Developed HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights.	Private
	14.23	514.2R	Lowland hardwoods HD: Historic Disposal Site				
	14.24	514.0L	Dredged material beach HD: Historic Disposal Site		Need additional cultural data. Nourish only as necessary.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Public (City of Albany)

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 5 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	14.25  15	514.0L	Old field	-123	Increase height of area. RWG beach request.	DSSTF: Potential for severe erosion and increase in flood heights. CRWG: 3 FPMWG: A(1, 2), D(1f, 1e, 3c), B(3)		Public (City of Albany)
	14.26	513.9L	Developed		Increase height of area. RWG beach request.	DSSTF: Adverse impacts on fish and wildlife. CRWG: 3 FPMWG: A(1, 2), D(1f, 1e, 3c)	Inland transport across unimproved road.	Public (City of Albany)
	14.27	513.7R	Dredged material beach and old field HD: Historic Disposal Site		Prevent material from entering backwaters and revegetate. No further encroachment.	DSSTF: Adverse impacts on fish and wildlife and potential for severe erosion.		Federal (UNRWLFR)
	14.28	513.7L	Dredged material beach		RWG beach request.	DSSTF: Potential for severe erosion. FPMWG: A(1, 2), D(1f, 1e, 3d)		Private
	14.29	513.4L	Old field			CRWG: 3 FPMWG: A(1, 3, 5), B(1f, 1e)		
	14.30	513.2R	Developed			FPMWG: A(1, 2, 8), D(1f, 2a, 2d, 3a)		

# DISPOSAL ALTERNATIVES

POOL 14 PAGE 6 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (4 or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	14.31	513.21	Lowland hardwoods			CRWG: 3 FPMWG: A(1, 3, 5), B, D(1f, 1e) MENWG: 2		
	14.32	513.0R	Agricultural field and lowland hardwoods		Prevent material from entering backwaters. Additional cultural data required.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. CRWG: 2 FPMWG: A(1, 2, 4, 5, 7), B(1, 3), D(1a, 1b, 1d, 1e, 2c, 2d, 3a) MENWG: 2 RWG: 1(b, c)		Private (Determan's Blacktop)
	14.33	512.9R	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Federal
	14.34	512.9R	Sandpit			DSSTF: Adverse impacts on fish and wildlife.		Private
	14.35	512.7L	Lowland hardwoods			FPMWG: A(1, 2, 3, 4, 8), B(3, 7), D(1a, 1b, 1d, 1e, 1f, 2a, 2b, 2c, 2d, 3c) MENWG: 2 RWG: 1(g)		
	14.35.01	512.6R	Developed		Stockpile	CRWG: 3 FPMWG: A(1, 2, 8), D(1f, 1g) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 14 PAGE 7 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	14.36	512.5	Aquatic (backwater sand pit)		Keep material in pit.			Private (Determan's Blacktop)
	14.37	512.31	Wetlands			FPMWG: A(1, 2, 8), B(1), D(1a, 1b, 1e, 1f, 1g, 2a, 2b) MENWG: 2		
	14.38	511.5R	Old field and wetlands			FPMWG: A(1, 2), B(3), D(1f, 3a, 3c) MENWG: 2		
	14.39	511.0R	Agricultural field			FPMWG: A(8), D(1f, 1g)		
	14.40	510.9R	Old field			CRMWG: 2 FPMWG: A(1, 2, 8), D(1e, 1f)		
	14.41	510.7R	Sand pit and old field			FPMWG: A(1, 8), D(1a, 1b, 1e, 1f, 1h)		

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 8 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	14.42	510.3R	Old field			CRWG: 2 FWMWG: A(1, 2, 8), D(1a, 1b, 1e, 1f) MENWG: 2		Private
	14.43	510.3L	Aquatic (backwater sand pit)					Private (Moline Consumers)
	14.44	510.1R	Old field		Stockpile	CRWG: 2 FPMWG: A(1, 2, 5, 8), B(1, 6g, 2a, 2b, 2c, 2d), D(1a, 1b, 1c, 1e, 1g)		
	14.45	510.0R	Old field			CRWG: 3 FPMWG: A(1, 8), D(1a, 1b, 1e, 1f, 1h, 1j)		
	14.46	509.9R	HD: Historic Disposal Site					
	14.47	509.8R	HD: Historic Disposal Site					

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 9 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (± or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Adams Island Upper 1/10 10,000 yd <sup>3</sup> RM: 508.5-509	14.48	509.7R	HD: Historic Disposal Site					
	14.49	509.6L	Old field	-20.5 (S-8.6)	Use only southwest half of site with water piped back to river.	DSSTF: Adverse impacts on fish and wildlife. CRWG: 2 FPMWG: A(7, 8), D(1a, 1e, 1f, 1g) MENWG: 2	Inland transport required across one gravel road and a 20 foot rise.	Private
	14.50	509.3R	Old field			CRWG: 2 FPMWG: A(1, 2, 8), D(1e, 1f) MENWG: 2		
	14.51	509.2R	Dredged material beach and lowland hardwoods HD: Historic Disposal Site		Prevent material from entering backwaters. Additional cultural data required.			Federal (UMRWLFR)
	14.52	509.0R	Dredged material beach and lowland hardwoods HD: Historic Disposal Site		Prevent material from entering backwaters. Additional cultural data required.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal (UMRWLFR)
	14.53	508.8R	Old field		Stockpile	CRWG: 2 FPMWG: A(1, 2, 8), D(1f) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 14 PAGE 10 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION-LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(*or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	14.54	508.8L	Agricultural field		DSSTF: Adverse impacts on fish and wildlife. CRWG: 2 FWMWG: A(7, 8), D(1g) MENWG: 2		Private
	14.55	508.7R	Lowland hardwoods HD: Historic Disposal Site		DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	14.56	508.3L	Old field	Stockpile	CRWG: 2 FWMWG: A(1, 8), D(1f) MENWG: 2		
	14.57	508.3L	Agricultural field		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. CRWG: 2 FPMWG: A(1, 2, 8, 5), D(1e, 1f) MENWG: 2		Private
	14.58	508.3L	Lowland hardwoods		CRWG: 2 FWMWG: A(2, 4, 6, 8), D(1a, 1b, 1d, 1e, 1f) MENWG: 2 RWG: 1(c, d)		
	14.59	508.0R	Agricultural field	Stockpile	CRWG: 2 FPMWG: A(8), D(1e, 1f, 1g)		



# DISPOSAL ALTERNATIVES

POOL 14 PAGE 11 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	14.60	507.8L	Old field	Stockpile	FWMG: A(8), D(1e, 1f, 1h, 1j) MENWG: 2		
	14.61	507.8R	Gravel pit	Private use of material.	CRWG: 2 FPMWG: A(1, 8) FWMG: A(1, 8)		
	14.62	507.8R	Lowland hardwoods		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. CRWG: 2 FPMWG: A(1, 2, 3, 4, 5, 8) FWMG: B(1, 5), D(1a, 1b, 1d, 1e, 3c) MENWG: 2		Federal
	14.63	507.8L	Old field	Stockpile	CRWG: 2 FPMWG: A(2, 8), D(1e, 1f, 1h, 1j) MENWG: 2		
	14.64	507.5L	Agricultural field	Stockpile	CRWG: 2 FPMWG: A(2, 3, 4, 8), D(1f, 1g) MENWG: 2		
	14.65	507.4L	Lowland hardwoods and old field	Stockpile	CRWG: 2 FPMWG: D(a, e, f, g, h, j) MENWG: 2		

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 12 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	14.66	507.2L	Old field and low-land hardwoods			DSSIF: Adverse impacts on fish and wildlife. CRWG: 2 FMMWG: D(1a, 1e, 1f) MENWG: 2 RWG: 1(g)		Private
	14.67	506.8R	Lowland hardwoods and wetlands			CRWG: 3 FPMWG: FMMWG: A(1, 8), D(1e, 1f) MENWG: 2		
	14.68	506.2R	Agricultural field			FMMWG: A(1, 2, 3), D(1e, 1f, 1g, 1c) RWG: 1(c)		
	14.69	506.1L	Dredged material and lowland hardwoods HD: Historic Disposal Site					
	14.70	506.1R	Agricultural field		Stockpile	FMMWG: A(1, 2, 3), D(1e, 1f, 1g)		
	14.71	506.0R	Levee		Complete necessary environmental analysis if levee to be raised.			Federal and State

# DISPOSAL ALTERNATIVES

POOL 14 PAGE 13 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Island 299 1/20 15,000 yd <sup>3</sup> RM: 505.6-506	14.72	505.7R	Developed and old field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. CRWG: 3 FPMWG: A(1, 2, 3, 5, 9), D(1f) MENWG: 2 RMG: 2 (b)		Federal
	14.73	505.6L	Lowland hardwoods		Prevent material from entering backwaters. Additional cultural data required.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal (UMRWLFR)
	14.74	505.6L	Old field (Disturbed sand prairie)	- 15.2 (S-12.9)	Protect eagle roost. Use disturbed portion of site only.	DSSTF: Adverse impacts on fish and wildlife. CRWG: 2 MENWG: 2	Inland transport required across 30 foot rise, developed area and one paved road.	Private
	14.75	505.4L	Old field			CRWG: 2 FPMWG: D(1e, 1f, 1g) MENWG: 2		
	14.76	504.2L	Agricultural field			CRWG: 2 MENWG: 2		
	14.77	504.0R	Dredged material beach HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal


# DISPOSAL ALTERNATIVES

POOL 14 PAGE 14 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Streamboat Slough 1/8 35,000 yd <sup>3</sup> RM: 503.2-504	14.78	504.0L	Old field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. CRWG: 2 MENWG: 2		Private
	14.79	503.9R	Developed and low-land hardwoods			MENWG: 2 RWG: 1(g)		
	14.80	503.8R	Dredged material beach HD: Historic Disposal Site		Confine material to existing site. Prevent material from entering backwaters as happened in past disposals.			Federal (UNRWLFR)
	14.81	503.6R	Dredged material beach HD: Historic Disposal Site		Confine material to existing site. Prevent material from entering backwaters as happened in past disposals.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal (UNRWLFR)
	14.82	503.1R	Developed (Quarry)			MENWG: 2		Private
	14.83	503.0R	Developed			CRWG: 2 FPMWG: FMMW.3: A(1, 2, 8) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 14 PAGE 15 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	14.84	503.08	Lowland hardwoods			DSSIF: Adverse impacts on fish and wildlife. FPMWG: A(1, 2, 3), B(3, 7), D(2a, 2c, 1a, 1i) MENWG: 2 RWG: 1(g)		Private and Federal
	14.85	502.91	Old field		Stockpile	MENWG: 2		
	14.86	502.88	Agricultural field			CRWG: 2 FPMWG: A(1, 7), D(1g) MENWG: 2		
	14.87	502.58	Agricultural field		Stockpile			
	14.88	502.51	Lowland hardwoods		Stockpile			
	14.89	501.71	Developed (gravel pit)	- 28.3 (S-5.6)	Protect creek and wooded area at east side of quarry.	MENWG: 2		Private (Cordova Quarries)
	 10.9 (\$3.5)							

# DISPOSAL ALTERNATIVES

POOL 14 PAGE 16 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (4 or -)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	14.90	501.3L	Old field	Stockpile	CRWG: 2 FPMWG: A(1, 2), D(1a, 1e, 1f, 1g, 1i) MENWG: 2		
	14.91	500.5L	Agricultural field	Stockpile			
	14.92	499.1L	Old field		DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. CRWG: 2 FPMWG: D(1e, 1f, 1j), A(1, 2) MENWG: 2		Federal
	14.93	498.2R	Developed	- 44.2 (S- 6,4) Barging required to commercial dock. Quarry will remove material.	FPMWG: A(1, 2), B(3) MENWG: 2		Private
	14.94	497.2R	Developed		CRWG: 3 FPMWG: 1 FPMWG: A(1, 2), B(3) MENWG: 2		
	14.95	496.7L	Agricultural field		CRWG: 2		

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 17 of 18

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	14.96	496.4L	Agricultural field			CRWG: 2 FPMWG: A(1, 2), D(1f, 1g) MENWG: 2		
	14.97	495.8R	Old field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. CRWG: 1 FPMWG: A(1, 2), D(1f) MENWG: 2		Private
	14.98	495.6L	Old field			DSSTF: Adverse impacts on fish and wildlife resources, potential for severe erosion. CRWG: 2 FPMWG: A(1, 2), B(3), D(1e, 1f, 1j) MENWG: 2 RWG: 1(g)		Private
	14.99	495.0L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	14.100	494.6L	Aquatic (main channel border) HD: Historic Disposal Site					
	14.101	494.5R	Lowland hard-woods and wet-lands			CRWG: 3 FPMWG: D(2a, 2b, 3c, 1a), A(1, 2), B(1a, 1b, 1c, 3)		

# DISPOSAL ALTERNATIVES

## POOL 14 PAGE 18 of 18

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Above L & D 14 1/6 40,000 yd <sup>3</sup> RW: 493.5-494.8	14.102	494.5R	Dredged material HD: Historic Disposal Site					
	14.103	494.2R	Dredged material and lowland hard- woods HD: Historic Disposal Site		Confine material to existing disposal site. Follow RWG guidelines, OSIT to determine site para- meters.			Federal
	14.104	493.7R	Dredged material beach HD: Historic Disposal Site			USSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal




# DISPOSAL ALTERNATIVES

POOL 15 PAGE 1 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	15.1	492.8R	Agricultural field			FPMWG: 4 FMMWG: A(1, 2), D(1e, 1f, 1g) MENWG: 1		
	15.2	492.6R	Agricultural field			FPMWG: 2 FMMWG: A(1, 2), D(1e, 1f, 1g) MENWG: 1		
	15.3	492.5L	Agricultural field			DSSTF: Potential for severe erosion. Adverse impacts on fish and wildlife resources. FPMWG: 4		State
	15.4	492.4R	Lowland hardwoods and developed			DSSTF: Potential for severe erosion. Adverse impacts on fish and wildlife resources. FPMWG: 4 FMMWG: A(1, 2, 5) MENWG: 1 RWG: 1(g)		Private
	15.5	492.2R	Landfill			FPMWG: 4 FMMWG: A(1, 2, 7) MENWG: 1		
	15.6	491.6R	Developed			FPMWG: 4 FMMWG: A(1, 7) MENWG: 2 RWG: 1(h)		


# DISPOSAL ALTERNATIVES

POOL 15 PAGE 2 of 6

DREDGE CUT	PRIMARY/ DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	15.7  4	491.4L	Dredged material HD: Historic Disposal Site	-5.6	Search for beneficial use. RWG beach re-quest.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		
	15.8	491.3	Agricultural field			FPMWG: 4 FWMWG: A(1, 2, 5, 6, 7)		
	15.9	491.2L	Lowland hardwoods			FPMWG: 4 FWMWG: A(1, 2, 4, 5, 6, 7), B(1, 3, 5), D(1a, 1b, 1c, 1d, 1f, 1g) RWG: 1(g)		
	15.10	491.0R	Developed and agricultural field			FPMWG: 2, 4 FWMWG: A(1, 2, 4), D(1a, 1b, 1d, 1e, 1f, 1i, 2a, 2b, 3a) MENWG: 2 RWG: 1(g, h)		
	15.11	490.7L	Lowland hardwoods			FPMWG: 2 FWMWG: A(1, 2, 5, 6, 7) MENWG: 2		
	15.12	490.5L	Agricultural field			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FPMWG: 4 FWMWG: A(1, 5, 6, 7), D(1e, 1f, 1g) MENWG: 2 RWG: 1(g)		Private

# DISPOSAL ALTERNATIVES

## POOL 15 PAGE 3 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	15.13	490.5R	Agricultural field			RMG: 1(h)		
	15.14	490.4R	Agricultural field			RMG: 1(h)		
	15.15	489.8L	Dredged material HD: Historic Disposal Site	-5.6	Search for beneficial use. RMG beach request.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		
4	15.16	489.7R	Agricultural field					
	15.17	489.6R	Aquatic (main channel border) HD: Historic Disposal Site					
	15.18	489.4L	Aquatic (main channel border) HD: Historic Disposal Site					

# DISPOSAL ALTERNATIVES

## POOL 15 PAGE 4 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	15.19	489.3L	Lowland hardwoods and wetlands			FPMWG: 2 FMMWG: A(1, 2, 5, 6, 7), B(1), D(1a, 1b, 1e, 1f, 2a, 2b) RWG: 1(g)		
	15.20	489.3L	Old field			DSSTF: Potential for severe erosion. Adverse impacts on fish and wildlife resources. FPMWG: 2 FMMWG: A(1, 2, 5, 6, 7), B(1), D(1a, 1b, 1e, 1f, 2a, 2b)		Private
	15.21	488.2L	Old field (land-fill)			FPMWG: 4 FMMWG: A(1, 2, 5), D(1f)		
	15.22	488.2R	Mowed grass			FMMWG: A(1, 2, 4, 5, 6, 7) B(3), D(1d, 1e, 1f, 1g, 2c, 3a) MENWG: 2		
	15.23	488.2R	Agricultural field					
	15.24	488.1R	Old field					

# DISPOSAL ALTERNATIVES

POOL 15 PAGE 5 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	15.25	487.9R	Lowland hardwoods			FPMWG: 2 FMMWG: A(1, 2, 4, 5, 6, 7) B(3, 8), D(1a, 1b, 1d, 1e, 2a, 2b, 2d, 3a) MENWG: 2 RWG: 1(g)		
	15.26	487.7R	Developed (land-fill)			FPMWG: 2 FMMWG: A(1, 2, 5, 6, 7), D(1e, 1f) MENWG: 2		
	15.27	487.5R	Developed			FPMWG: 2 FMMWG: A(1, 2, 5), D(1f) MENWG: 2		Private
	15.28	487.4R	Developed (land-fill)			FPMWG: 2 FMMWG: A(1, 2, 5), D(1f) MENWG: 2		Private
	15.29	486.9R	Old field (inactive land-fill)			FPMWG: 2 FMMWG: A(1, 2, 5), D(1f) MENWG: 2		
	15.30	486.8L	Mowed grass			FPMWG: 2 FMMWG: A(1, 2), D(1f) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 15 PAGE 6 of 6

ORE DGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	15.31	484.0R	Developed and mowed grass			FPMWG: 2 FWMWG: A(1, 2)		
	15.32	483.3R	Developed					Private

# DISPOSAL ALTERNATIVES

## POOL 16 PAGE 1 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Lock & Dam 15 Lower Approach 1/5 20,000 yd <sup>3</sup> RM: 482.3- 483.8	16.1	482.8L	Lowland hardwoods and dredged material HD: Historic Disposal Site		DSSIF - Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	16.2	482.0R	Developed	-58.5 (S-6.4)	DSSIF - Potential for severe erosion. FPMWG: 2		Private
Below Centennial Bridge 1/4 20,000 yd <sup>3</sup> RM: 481.3- 482	16.3	481.8R	Dredged material HD: Historic Disposal Site		DSSIF - Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FPMWG: A(1)		Federal
	16.4	481.5R	Old field (inactive land-fill)	Barging required. Run-off must be monitored.	FPMWG: 4 FPMWG: A(1)		Private
	16.5	481.2	Old field (inactive land-fill)		DSSIF - Potential for severe erosion. FPMWG: 2		Private
	16.6	481.5R	Old field and lowland hardwoods		FPMWG: 4 FPMWG: A(1, 2, 5, 6, 7), B(1, 3), D(1e, 1f, 2b, 3a) RMG: 1(b, c)		

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 2 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(*or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	16.7	480.3L	Wetlands, old field and lowland hardwoods		DSSIF: Adverse impacts on fish and wildlife. Potential for severe erosion. FPMWG: 2 FWMWG: A(1, 2, 5, 6, 7), B(6), D(1a, 1f, 1k, 2a, 2b, 2d) MENWG: 2 RWG: 1(b, d)		Private
	16.8	480.2L	Developed		MENWG: 2		Public
	16.9	479.8R	Agricultural field		DSSIF: Adverse impacts on fish and wildlife. Potential for severe erosion. FPMWG: 4 FWMWG: A(1, 2, 5), B(1, 6), D(1b, 1c, 1f, 1g, 1i, 2a, 2b, 2c, 2d, 3a) MENWG: 2 RWG: 1(b)		Private
	16.10	479.5R	Pond and mowed grass		FPMWG: 4 FWMWG: A(1, 2, 5), B(6)		
	16.11	479.5R	Old field		DSSIF: Adverse impacts on fish and wildlife. Potential for severe erosion. FPMWG: 2 FWMWG: A(1, 2, 5), B(1), D(1f, 1c, 2a, 2b, 2d) MENWG: 2		Private
	16.12	478.7R	Agricultural field		FPMWG: 4 FWMWG: A(1, 2, 5), D(1b, 1c, 1f, 1g) MENWG: 2		



# DISPOSAL ALTERNATIVES

## POOL 16 PAGE 3 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	16.13	478.3R	Agricultural field			FPMWG: 4 FWMWG: A(1, 2, 5), B(1)		
	16.14	478.2R	Agricultural field			FPMWG: 2 FWMWG: A(1), D(1e, 1f, 1g)		
	16.15	478.0R	Old field (inactive land-fill)			FPMWG: 2 FWMWG: A(1, 2, 5, 6), B(1, 6), D(1a, 1b, 1c, 1e, 1f, 1g, 3a) RWG: 1(c, g)		
	16.16	478.0L	Old field			FPMWG: 4 FWMWG: A(1, 2, 5), B(1), D(1a, 1c, 1f, 1g, 2a, 2b, 2d) MENWG: 2		
	16.17	477.8L	Old field			FPMWG: 2 FWMWG: A(1, 2, 6), B(1), D(1e, 1f, 1g, 2a) MENWG: 2		
	16.18	477.7L	Agricultural field			FPMWG: 4 FWMWG: A(8) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 4 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	16.19	476.2R	Agricultural field		FPMWG: 4 FMMWG: A(1, 2), B(1a)		
	16.20	476.2L	Agricultural field		FMMWG: A(8)		
	16.21	476.0L	Agricultural field		FMMWG: A(8) MENWG: 2 RWG: 1(h)		
	16.22	475.0R	Developed and old field		FPMWG: 2 FMMWG: A(1, 2, 6), B(1, 3, 8), D(1a, 1b, 1e, 1f, 2a)		
	16.23	474.2L	Agricultural field and low-land hardwoods		FPMWG: 2 FMMWG: A(1, 2), B(1a), D(1b, 1e, 1f, 1g, 2a) MENWG: 2		
	16.24	474.3R	Old field (inactive land-fill)		DSSTF: Potential for severe erosion. FPMWG: 2 FMMWG: A(1, 2)		Private: Martin-Mariette

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 5 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	16.25	474.0R	Lowland hardwoods and old field (old quarry)		Additional cultural data required. Additional environmental assessment required.	DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FPMWG: 2 FMMWG: A(1, 2), B(8), D(1b, 1d, 1g, 2a) MENWG: 2	Private
	16.26	473.7R	Lowland hardwoods (inactive land-fill)			FPMWG: 4 FMMWG: A(1, 2, 6), B(1, 3), D(1a, 1d, 1e, 1i, 2a, 2b, 3) RWG: 1(g)	
	16.27	473.7R	Agricultural field			MENWG: 2 RWG: 1(g)	
	16.28	473.4L	Agricultural field			FPMWG: 4 FMMWG: A(1, 2, 5), D(1e, 1f, 1g) MENWG: 2 RWG: 1(b, h)	
	16.29	473.0L	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Federal
	16.30	472.8L	Old field	-64 (S-21.5)		FPMWG: 2 FMMWG: A(1, 2), D(1f)	

7.8 (S2.5)

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 6 of 11


DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	16.31	472.5L	Lowland hardwoods		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FPMWG: 4 FMMWG: A(1, 2, 7), B(1, 5), D(1e, 1i, 2a, 2b, 2c)		Federal
	16.32	472.5R	Dredged material and lowland hardwoods HD: Historic Disposal Site		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FPMWG: 4 FMMWG: A(1, 2, 3), B(1, 3), D(1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c)		Private
	16.33	472.5R	Dredged material beach		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FPMWG: 4 FMMWG: A(1, 2, 3), B(1, 3), D(1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c)		Private
	16.34	472.3L	Agricultural field		FMMWG: A(1, 2, 5, 7), D(1f, 1g)		
	16.35	471.7R	Agricultural field		DSSTF: Adverse impacts on fish and wildlife. FPMWG: 4 FMMWG: A(1, 8), D(1f, 1g)		Private
	16.36	471.1R	Agricultural field		FMMWG: A(1, 8), D(1f, 1g)		



Buffalo  
1/8  
25,000 yd<sup>3</sup>  
RM: 472-  
473.2

# DISPOSAL ALTERNATIVES

POOL 16. PAGE 7 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
<p>Montpelier -/10 25,000 yd<sup>3</sup> RM: 469.2- 471.2</p>	16.37	470.8L	Lowland hardwoods and wetlands		<p>FPMWG: 4 FMMWG: A(1, 8), D(1a, 1b, 1d, 1e, 3c)</p>		
	16.38	470.3R	Agricultural field		<p>DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FPMWG: 2 FMMWG: A(1, 2, 8), D(1f, 1g) MENWG: 2</p>		Private
	16.39	469.6L	Agricultural field		<p>FPMWG: 2 FMMWG: A(1, 8), D(1f, 1g) MENWG: 2 RMG: 1(g)</p>		
	16.40	469.5L	Dredged material HD: Historic Disposal Site		<p>DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.</p>		Federal
	16.41	469.5R	Dredged material HD: Historic Disposal Site				
	16.42	469.5R	Old field HD: Historic Disposal Site	<p>-51.7 (S-11.2)</p>	<p>Stockpile pending hydraulic studies. Potential need for removal of material before spring high water.</p>		
	 12.6 (S1.3)						

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 8 of 11

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	16.43	469.0R	Lowland hardwoods and wetlands		FPMWG: 4 FWMWG: A(1, 2, 5, 8), B(1a, 1b, 1c, 3a, 3b, 3c, 3d, 3e), D(1a, 1e, 1f, 2a, 2b, 3c)		
	16.44	468.0R	Old field and lowland hardwoods		DSSIF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FWMWG: A(1, 2, 5), B(3a, 3b, 3c, 3d, 3e), D(1a, 1e, 1f, 2a, 2b, 3c)		Federal
	16.45	468.0L	Agricultural field		FWMWG: A(8)		
	16.46	468.0R	Developed		Barging required		Private
	16.47	467.9L	Agricultural field		FWMWG: A(8)		
	16.48	467.7L	Agricultural field		FWMWG: A(8), D(1f, 1g) MENWG: 2 RWG: 1(g)		

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 9 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	16.49	467.2L	Old field		FPMWG: 2 FMMWG: A(1, 2, 5, 8), D(1a, 1f) MENWG: 2 RWG: 1(a)		
	16.50	466.7R	Agricultural field		FPMWG: 4 FMMWG: A(1, 2, 8), D(1a, 2a, 2d, 3a) MENWG: 2 RWG: 1(c)		
	16.51	465.8R	Agricultural field		FPMWG: 4 FMMWG: A(1, 2, 8), D(1g, 1f) MENWG: 2		
	16.52	465.1R	Agricultural field		FPMWG: 4 FMMWG: A(1, 2, 8), D(1f, 1g) MENWG: 2		
	16.53	464.6R	Agricultural field		FPMWG: 4 FMMWG: A(1, 5), D(1g, 1f) MENWG: 2		
	16.54	464.5L	Agricultural field		FPMWG: 4 FMMWG: A(1, 8), D(1g, 1f) MENWG: 2		

# DISPOSAL ALTERNATIVES

POOL 16 PAGE 10 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Hershey Chute Upper 1/16 30,000 yd <sup>3</sup> RM: 461-462	16.55	464.2R	Agricultural field		Additional cultural data required.	DSSTF: Adverse impacts on fish and wildlife. FPMWG: 4 FMMWG: A(1, 5), B(1g, 1f) MENWG: 2		Private
	16.56	462.7R	Agricultural field			MENWG: 2		
	16.57	461.7R	Lowland hardwoods HD: Historic Disposal Site	-201.5		DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	16.58	461.2R	Agricultural field		RWG beach request.	DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion. MENWG: 2		Private
	16.59	460.9L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion.		Private
	16.60	459.9R	Lowland hardwoods and wetlands			FPMWG: 4 FMMWG: A(1, 2, 4, 5), B(1, 3, 7), D(1a, 1e, 1f, 1i, 2a, 2b, 2d, 3b, 3c) MENWG: 2		



# DISPOSAL ALTERNATIVES

## POOL 16 PAGE 11 of 11

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	16.61	458.8L	Agricultural field			FWMWG: A(1), D(1f, 1g)		
	16.62	458.2L	Agricultural field			FWMWG: A(1), D(1f, 1g)		
	16.63	457.1L	Agricultural field			FWMWG: A(1), D(1f, 1g) MENWG: 2		
	16.64	458.0R	Agricultural field and low-land hardwoods		Barging required	DSSTF: Adverse impacts on fish and wildlife. FWMWG: 4 FWMWG: A(1, 2, 4), B(1a, 1b, 1c), D(1a, 1d, 1e, 1f, 1g, 1i, 6a, 6b, 6c, 2a, 2b, 2c, 2d, 3c)		Private

# DISPOSAL ALTERNATIVES

## POOL 17 PAGE 1 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	17.1	456.6L	Agricultural field		RWG: 1(h)		
	17.2	456.0L					
	17.3	455.8L	Old field		FWRWG: B(1a, 1b, 1c), D(1e, 1f, 2b, 3c) RWG: 1(g)		Private
	17.4	455.6L	Agricultural field		RWG: 1(g)		
	17.5	455.6L					
	17.6	455.6L					

# DISPOSAL ALTERNATIVES

POOL 17 PAGE 2 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	OBJECTS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
<p>Muscatine Island 1/12 45,000 yd<sup>3</sup> RM: 453.2-454.5</p>	17.7	455.4L	Old field		<p>FPMWG: D(1a, lb, le, lf, 1g, 2a, 2b, 2c, 2d, 3c)</p>		Private
	17.8	455.3L					
	17.9	454.5L	Lowland hardwoods HD: Historic Disposal Site	- 166.7	Prevent material from entering backwaters. Revegetate. Additional cultural data required.	FPMWG: A(1), D(1a)	Private
	17.10	454.0L	Dredged material and lowland hardwoods HD: Historic Disposal Site		Prevent material from entering backwaters. Revegetate. Additional cultural data required.	<p>DKMWG: 2</p> <p>FPMWG: A(1, 2), D(2a, 2b, 2c, 2d)</p> <p>RWG: 2</p>	Federal
	17.11	453.5L	Dredged material and lowland hardwoods HD: Historic Disposal Site		Prevent material from entering backwaters. Revegetate. Additional cultural data required. RWG beach request.	FPMWG: A(1, 2), B(5a, 5b, 5c, 5d, 5f, 2a, 2b, 2c, 2d, 2f)	Private
	17.12	452.8L	Agricultural field			FPMWG: 1(h) RWG:	Federal

# DISPOSAL ALTERNATIVES

## POOL 17 PAGE 3 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Blanchard Island 1/20 20,000 yd <sup>3</sup> RM: 451.4-452	17.13	452.5R	Old field (sand pit)					
	17.14	452.5L	Agricultural field			FPMWG: RWG: 1(h)		
	17.15	452.0L	Lowland hard-woods			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	17.16	451.8L	Aquatic (main channel border) HD: Historic Disposal Site					
	17.17	451.6R	Agricultural field			FPMWG: B(6a, 6b, 6c, 6d, 6e), D(1a, 1e, 1f, 1g, 1h, 1i, 1k, 2a, 2b, 2d, 2e, 3a, 3b, 3c) RWG: 1(a, b)		
	17.18	451.5L	Lowland hard-woods HD: Historic Disposal Site		Prevent material from entering backwaters. Revegetate.	FPMWG: A(1, 2)		Federal

# DISPOSAL ALTERNATIVES

PAGE 4 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	17.19	451.5R	Old field (sand prairie)			FWMG: B(6a, 6b, 6c, 6d, 6e), D(1a, 1e, 1f, 1g, 1h, 1i, 1k, 2a, 2b, 2d, 2e, 3a, 3b, 3c) RWG:		Private
	17.20	451.2R	Developed	- 104 (S-8)	Pump material behind levee into sand pit.	FWMG: A(4, 6), D(6a, 6b, 6c, 6d, 6e, 1a, 1e, 1f, 1g, 1h, 1i, 1k, 2a, 2b, 2d, 2e) RWG: 1(a, b)	Requires inland transport across one levee.	Private (W.O. Block)
	17.21	451.0R	Old field (sand prairie)					Private
	17.22	450.5R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife and agriculture. FWMG: A(4, 6)		Private
	17.23	450.0L	Developed and lowland hardwoods			DSSTF: Potential for severe erosion. Adverse impacts on fish and wildlife. High transportation costs.		Federal
	17.24	449.9R	Developed			DSSTF: Potential for severe erosion.		Private (Monsanto)

# DISPOSAL ALTERNATIVES

POOL 17 PAGE 5 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	OBJECTIONS FOR USE	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
<p>Bass Island 1/4 30,000 yd<sup>3</sup> RM: 447.5-448.5</p>	17.25	448.5L	Agricultural field				
	17.26	448.1L	Dredged material HD: Historic Disposal Site	Prevent material from entering backwaters. Revegetate. RWG beach request.	DSIF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FWMG: A(1, 2, 5), D(11)		Federal
	17.27	448.1R	Dredged material and lowland hardwoods HD: Historic Disposal Site		DSIF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	17.28	448.0L	Agricultural field		FWMG: A(1, 2, 4, 6, 8), D(1e, 1f, 1g, 1k, 2b)		
	17.29	448.0R	Agricultural field		FWMG: D(1e, 1f, 1g, 1h, 1i, 1k), A(1, 2, 4, 6)		
	17.30	447.4R	Dredged material and lowland hardwoods HD: Historic Disposal Site				

# DISPOSAL ALTERNATIVES

## POOL 17 PAGE 6 of 6

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	17.31	446.7L	Agricultural field			FWMG: A(1, 2, 4), D(1f, 1g, 1k)		
	17.32	442.2L	Agricultural field			FWMG: D(1f, 1g)		
	17.33	439.0L	Agricultural field			FWMG: D(1f, 1g)		
	17.34	437.5L	Agricultural field			FWMG: D(1f, 1g)		
	17.35	433.2L	Agricultural field			FWMG: D(1f, 1g)		
	17.36	433.0L	Agricultural field			FWMG: D(1f, 1g)		

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 1 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (A or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	18.1	437.3R	Agricultural field			FWMWG: A(8) RWG: 1(g, h)		
	18.2	436.0R	Agricultural field			FWMWG: A(8) RWG: 1(h)		
	18.3	435.0R	Levee		Barging required. Stockpile material for levee maintenance. Additional cultural data required.	DSSTF: Adverse impacts on fish and wildlife.	Requires inland transport across parking lot and access road.	Federal
	18.4	434.0L	Dredged material HD: Historic Disposal Site		Additional cultural data required. Nourish as necessary. Maintain TF433 as required. RWG beach request.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	18.5	434.0R	Agricultural field			FWMWG: A(8) RWG: 1(h)		
	18.6	433.0R	Agricultural field					





# DISPOSAL ALTERNATIVES

## POOL 18 PAGE 2 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	18.7	433.08	Agricultural field		Stockpile. Place material up against levee.	DSSTF: Adverse impacts on fish and wildlife.	Requires inland transport across recreation area and one levee.	Private
12.5 (S2)	18.8	433.08	Old field	- 102.5 (S-17.2)	Raise recreational area 2 to 3 feet, then stockpile. Additional cultural data required. RWG beach request.	DSSTF: Potential for severe erosion.	Requires inland transport across developed land.	Federal
	18.9	432.5L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion.		Private
	18.10	432.5L	Agricultural field			FWMG: A(3) RWG: 1(c, g, h)		
	18.11	432.4L	Lowland hardwoods			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	18.12	432.0L	Agricultural field			FWMG: A(8)		

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 3 of 9

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL SITE	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Upper Edwards River 1/3 10,000 yd <sup>3</sup> RM: 431.3-432		18.13	431.6L	Lowland hardwoods HD: Historic Disposal Site	Calculated with 18.14	Place rock dredged to stabilize bank. After bank is stabilized seek other beneficial uses.	DSSTF: Adverse impacts on fish and wildlife.	Requires inland transport across steep river bank. Barging.	Federal
		18.14	431.5R	Lowland hardwoods HD: Historic Disposal Site	- 130.4 (S-10.1)	Place sand dredged at site. Prevent material from entering backwaters.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
Lower Edwards River Rock (See Above) RM: 431.0-431.	16.5 (S1)	18.15	430.5R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion. FMMG: A(8), D(1f, 1g, 2a, 2b, 2c)		Private
		18.16	428.3L	Agricultural field			FMMG: A(8) RWG: 1(8, h)		
		18.17	427.3L	Dredged material and lowland hardwoods HD: Historic Disposal Site		Additional cultural data required. Stockpile.		Barging.	Private
		18.18	427.3L	Dredged material HD: Historic Disposal Site					

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 4 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	18.19	427.3R	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	18.20	426.8L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	18.21	426.8R	Agricultural field	- 322.4 (S-41.7)	Place next to levee.			
	18.22	426.8R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FMMWG: D(1f, 1g, 2a, 2b, 2e)		Private
	18.23	425.9L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	18.24	425.0R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FMMWG: A(8)		Private

Keithsburg  
Lower  
1/3  
30,000 yd<sup>3</sup>  
RM: 425.5-  
426.5

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 5 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Huron Island 1/5 20,000 yd <sup>3</sup> RR: 424.2-424.5	18.25	424.5L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FWMWG: A(8) RWG: 1(g)		Private
	18.26	424.3R	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	18.27	424.2L	Dredged material HD: Historic Disposal Site	- 77	Prevent material from entering backwaters. Contact Manager of Big Timber State Forest Recreation Area for exact placement. RWG beach request	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	18.28	421.8R	Agricultural field					
	18.29	421.5L	Agricultural field			FWMWG: A(8)		
	18.30	420.5R	Lowland hardwoods		Place material behind levee and near road for stockpile access.	DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion.	Requires inland transport across levee and low-land hardwoods.	Private

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 6 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Benton Island 1/5 30,000 yd <sup>3</sup> RM: 418.5-420	18.31	420.4R	Lowland hardwoods HD: Historic Disposal Site		DSSIF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	18.32	419.3L	Dredged material HD: Historic Disposal Site		Do not encroach on mature trees. RWG beach request. Stabilize lower end of site. RWG beach request.		Federal
	18.33	419.0L					
	18.34	418.3R	Levee	- 133.2 (S-43.8)	Use lower end of site placing material against inside of levee. Contain material in small area. Maintain beach at HDJ as necessary.	DSSIF: Adverse impacts on fish and wildlife. Potential for severe erosion.	Private
	18.35	418.2R	Developed		Barging required.		Private
	18.36	417.5L	Developed and lowland hardwoods				State (Delbar State Park)

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 7 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	18.37	417.3L	Agricultural field			RWG: 1(g)		
	18.38	417.0L	Agricultural field					
	18.39	416.5R	Agricultural field					
	18.40	415.6L	Developed		Barging required.	DSSIF: Adverse impacts on fish and wildlife. Potential for severe erosion.		Private
	18.41	414.9R	Dredged material HD: Historic Disposal Site					
	18.42	414.8L	Agricultural field		Barging required.	DSSIF: Adverse impacts on fish and wildlife. FMMWG: D(1a, 2a, 2b, 3a) RWG: 1(c)		Private

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 8 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Lock & Dam 18 Upper Approach 1/8 25,000 yd <sup>3</sup> RM:	18.43	414.7R	Agricultural field					
	18.44	414.0L	Agricultural field					
	18.45	412.8R	Agricultural field					
	18.46	411.7L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	18.47	411.0L	Dredged material HD: Historic Disposal Site	- 10.9	Keep material on bank in front of levee.			Federal & Oquawka State Wildlife Refuge
	18.48	410.8R	Agricultural field			FWMWG: B(1a, 1b, 1c), D(1a, 2a, 2b, 2c)		

# DISPOSAL ALTERNATIVES

POOL 18 PAGE 9 of 9

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL SITE	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
		Levee Disposal				In all cases of behind levee disposal, material should be placed along levee r-o-w, not on agricultural land where it is adjacent to levee.			





# DISPOSAL ALTERNATIVES

POOL 19 PAGE 1 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	19.1	409.6R	Agricultural field				
	19.2	409.4L	Agricultural field		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.	Behind levee	Private
	19.3	408.0R	Lowland hardwoods		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.4	408.0L	Agricultural field		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.	Behind levee	Private
	19.5	408.0L	Lowland hardwoods HD: Historic Disposal Site		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.6	408.0L	Dredged material HD: Historic Disposal Site		DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private



# DISPOSAL ALTERNATIVES

## POOL 19 PAGE 2 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Drew Chute 1/20 30,000 yd <sup>3</sup> RM: 407-408	19.7	408.0R	Dredged material HD: Historic Disposal Site		Demonstrate productive use of material first.	DSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.8	407.5L	Lowland hardwoods	 51.2 (S6.5)	- 418 (S65.6)			Private
	19.9	407.3L	Agricultural field			DSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
Rush Island 1/4 35,000 yd <sup>3</sup> RM: 406-407	19.10	407.0R	Dredged material HD: Historic Disposal Site	 *		Shoreline disposal only - no inland encroachment. Demonstrate productive use first.		Private
	19.11	406.4R	Dredged material and lowland hardwoods HD: Historic Disposal Site			Reslope beach to gentler grade. Use site only if side channel is not open. Stabilize lower end. RMG beach request.		Private
	19.12	406.2R	Dredged material and lowland hardwoods HD: Historic Disposal Site			Reslope beach to gentler grade. RMG beach request.		Private




# DISPOSAL ALTERNATIVES

POOL 19 PAGE 3 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	19.13 	405.9L	Dredged material HD: Historic Disposal Site		OSIT should evaluate site parameters. RWG beach request.	DSSIF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.14	405.4L	Agricultural field			DSSIF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.15	405.4L	Lowland hardwoods		Prevent material from entering backwaters.	DSSIF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.16	405.4R	Dredged material HD: Historic Disposal Site		RWG beach request	DSSIF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.17	405.4R	Old field		Place material behind levee. Return water should be directed through beach in southeast corner. Relocate wood duck boxes. Contain material. Additional cultural data required.	DSSIF: Adverse impacts on fish and wildlife, potential for severe erosion.	Cross levee	Private
Rush Island Lower 1/4 30,000 yd <sup>3</sup> RM: 405-406	19.18 	405.3R	Dredged material HD: Historic Disposal Site		Prevent material from entering backwaters. Additional cultural data required.	DSSIF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private

# DISPOSAL ALTERNATIVES

POOL 19 PAGE 4 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Burlington Highway Bridge 1/12 20,000 yd <sup>3</sup> RM: 404.2-404.5	19.19  16.3 (S3)	404.88	Old field	- 136 (S-25.8)	Keep material near levee and road at south end of site. At north end, all of site is acceptable. Additional cultural data required. Relocate wood duck boxes. Contain material.	DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.20	404.71	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.21	404.51	Dredged material HD: Historic Disposal Site			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.22  4 (S2)	404.5	Developed	- 10.4 (S-3.2)	Contain material for use in potential highway realignment. Maintain HD7 as necessary. Additional cultural data required.	DSSTF: Adverse impacts on fish and wildlife potential for severe erosion.	Cross levee	Private
	19.23  6.3 (S2.5)	401.6R	Developed	- 16.4 (S-9)	Place material in front of and downstream of boat club. Additional cultural data required. OSIT to develop site parameters.			Private
	19.24	401.5R	Dredged material HD: Historic Disposal Site			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private

# DISPOSAL ALTERNATIVES

PAGE 5 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
	19.25	401.3L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.26	401.0R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.27	401.0R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. RMG: 1(g)		Private
	19.28	400.5R	Dredged material (gravel quarry)	- 24.7	Prevent material from entering creek. Use culvert under railroad for access. Maintain HD394 as necessary. Additional cultural data required.	DSSTF: Adverse impacts on fish and wildlife.	Barging Culvert at rail-road tracks	Private
Burlington Bluff 1/10 25,000 yd <sup>3</sup> RM: 399.6-400.6	6.3					DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.30	399.8L	Dredged material and lowland hardwoods HD: Historic Disposal Site		Curtail secondary erosion. Additional cultural data required. DSIT should develop site parameters. RMG beach request.	DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private

# DISPOSAL ALTERNATIVES

POOL 19 PAGE 6 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Craigel Island 1/10 25,000 yd <sup>3</sup> RM: 399.2-399.6	19.31	399.4L	Dredged material and wetlands HD: Historic Disposal Site		RWG beach request	FNMWG: A(2), B(3), D(2a)		Private
	19.32	399.1R	Dredged material (gravel quarry)		Use drainageway to south for access. Contain material. OSIT should develop site parameters. Additional cultural data required.		Cross railroad tracks.	Private
Kemp's Landing 1/10 20,000 yd <sup>3</sup> RM: 398.2-399.2	19.33	399.1R	Developed (fly ash pond)	Alternate, 19.35 evaluated	Control return water. Additional cultural data required. Site parameters by OSIT.	DSSTF: Potential increase in flood heights. FPMWG: 4 FNMWG: A(1)	Cross levee	Private
	19.34	398.1L	Dredged material		Prevent material from entering backwaters. OSIT should develop site parameters.			Federal
	19.35	398.0R	Old field	- 41 (S-34.4)	Containment required to prevent encroachment into surrounding areas. Prevent material from entering backwaters. Additional cultural data required.	DSSTF: Adverse impacts on fish and wildlife.	Cross one unimproved road.	Private
	19.36	394.6R	Agricultural field			FNMWG: A(8)		Private

# DISPOSAL ALTERNATIVES

POOL 19 PAGE 7 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Shokkon 1/10 40,000 yd <sup>3</sup> RM: 394.2- 394.8	19.37	394.3L	Agricultural field			FPMWG: 4 FMMWG: A(1), B(1a, 1b, 1c) D(1a, 1f, 1g, 1L, 1m)		Private
	19.38	394.0R	Dredged material HQ: Historic Disposal Site		Prevent material from entering backwaters. Additional cultural data required. RWG beach request. Needs to be stabilized.	DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.39	394.0R	Lowland hardwoods	- 178 (S-40.4)	Keep material in front of levee near access road. Maintain 19.38 as necessary. OSIT should develop site parameters.	DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.		Private
	19.40	393.2L	Lowland hardwoods			FPMWG: 4 FMMWG: A(8), D(1a, 1b, 1e, 1i, 1L, 1m) RWG:		Private
	19.41	390.5R	Agricultural field					Private
	19.42	389.3L	Agricultural field			FPMWG: 4		Private

# DISPOSAL ALTERNATIVES

POOL 19 PAGE 8 of 10

DREDGE CUT	PRIMARY/ DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (for-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	19.43	387.8L	Agricultural field		FPMWG: 4		Private
	19.44	385.9R	Agricultural field		FWMWG: A(8), B(6a, 6b, 6c, 6d, 6e), D(1a, 1b, 1c, 1f, 1g, 1i, 1L, 1m, 2a, 2b, 2d) RMG: 1(g)		Private
	19.45	385.8R	Agricultural field		FWMWG: A(8), B(6a, 6b, 6c, 6d, 6e), D(1a, 1b, 1c, 1f, 1g, 1i, 1L, 1m, 2a, 2b, 2d) RMG: 1(g)		Private
	19.46	385.5L	Agricultural field		FWMWG: A(1), D(1g)		Private
	19.47	384.7L	Old field and agricultural field		FWMWG: A(1, 8), D(1a, 1f, 1g, 1L, 1m)		Private
	19.48	383.3L	Agricultural field and low-land hardwoods		FWMWG: A(1, 8), D(1a, 1e, 1f, 1L, 1m)		Private



# DISPOSAL ALTERNATIVES

## POOL 19 PAGE 9 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	19.49	380.6L	Agricultural field		RWG: 1(g, h)		Private
	19.50	379.0R	Agricultural field		FWMWG: A(1, 2, 5, 8), D(1g)		Private
	19.51	378.8L	Agricultural field		RWG: 1(h)		Private
	19.52	376.7R	Agricultural field		FWMWG: A(1, 2, 5), B(1a, 1b, 1c, 7a, 7b, 7c), D(1g, 1L, 1m, 2a, 2b, 2d)		Private
	19.53		Agricultural field				Private
	19.54	375.5L	Agricultural field		FWMWG: A(1, 2, 7), D(1f, 1g) RWG: 1(g, h)		Private

# DISPOSAL ALTERNATIVES

POOL 19 PAGE 10 of 10

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	19.55	375.0R	Agricultural field			FWMG: A(6), D(1e, 1f, 1L, 1k)		Private
	19.56	373.0R	Agricultural field			RWG: 1(g)		Private
	19.57	369.6L	Agricultural field					Private
	19.58	369.5R	Aquatic (water-filled quarry)			RWG: 1(g)		Private
	19.59	367.5L	Agricultural field					Private
	Levee Disposal				in all cases of behind levee disposal, material should be placed along levee r-o-w, not on agricultural land where it is adjacent to levee.			

# DISPOSAL ALTERNATIVES

## POOL 20 PAGE 1 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (H-or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Keokuk Steel 1/20 15,000 yd <sup>3</sup> RM: 361.9- 362.6	20.1	364.0L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion. FPMWG: 2 FWMWG: A(8)		Private
	20.2	363.2R	Developed	- 21.5 (S-6.4)	Stockpile	DSSTF: Potential for severe erosion. FWMWG: A(1), B(1a, 1b, 1c) D(1f)		Private
	20.3	362.0R	Developed		Barging required			Private
	20.4	361.5R	Developed and dredged material		RWG beach request	DSSTF: Potential for severe erosion.		Private
	20.5	359.5R	Agricultural field			FPMWG: 4 FWMWG: D(1e, 1f, 1g, 1L, 1m, 2b, 2f)		
	20.6	358.8R	Agricultural field			FPMWG: 4 FWMWG: A(1, 8)		
Des Moines River 1/10 25,000 yd <sup>3</sup> RM: 361- 361.6								



# DISPOSAL ALTERNATIVES

## POOL 20 PAGE 2 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	20.7	358.2L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FWMWG: A(8)		Private
	20.8	357.2L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FWMWG: A(8)		Private
	20.9	356.5L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FWMWG: A(8)		Private
	20.10	356.0R	Agricultural field		Stockpile for levee maintenance. Prevent material from entering backwaters. Maintain HD9 as necessary.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FPMWG: 4 FWMWG: A(1, 8), D(1f, 1g, 1e) RWG: 1e	Requires inland transport across levee.	Private
	20.11	355.7L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FWMWG: A(8)		Private
	20.12	355.0R	Agricultural field		Prevent material from entering backwaters. Minimize agricultural impacts.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Requires inland transport across beach.	Private


# DISPOSAL ALTERNATIVES

POOL 20 PAGE 3 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Fox Island 1/3 55,000 yd <sup>3</sup> RM: 354-356	20.13  90.8	355.0R	Dredged material and lowland hardwoods HD: Historic Disposal Site	Alternative 20.14 evaluated	Expand beach to lower end of island. RMG beach request. Pre-vent material from entering backwaters and agricultural field. Material will not stay against left bank.	DSSTF: Potential for severe erosion and increase in flood heights.		Private
	20.14  90.8 (S5.5)	355.0L	Lowland hardwoods	- 717.3 (S-55.6)	Place against levee			Private
	20.15	353.9L	Agricultural field			FMMWG: A(8)		
	20.16	353.7L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FMMWG: A(8)		Private
	20.17	353.7R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FMMWG: A(8)		Private
	20.18	353.0R	Agricultural field					


# DISPOSAL ALTERNATIVES

POOL 20 PAGE 4 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Gregory Lower 1/4 30,000 yd <sup>3</sup> RM: 351-352	20.19  18.8 (S3)	351.0R	Agricultural field	- 367.2 (S-41.7)	Use material to help stabilize bank. Additional cultural data required.	DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion.		Private
	20.20	350.8L	Agricultural field			FWMG: A(8)		
	20.21	350.7R	Agricultural field		Place material in northeast corner of site. Pump water back over levee. Prevent material from entering woods, wetlands and drainage ditches.	DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion. FWMG: A(8)	Requires inland transport across levee.	Private
	20.22	349.8R	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	20.23	349.6R	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	20.24	349.5R	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private

# DISPOSAL ALTERNATIVES

POOL 20 PAGE 5 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Buzzard Island 3/10 40,000 yd <sup>3</sup> RM: 348.8 - 349.6	 20.25 60 (S4)	349.3R	Dredged material HD: Historic Disposal Site	- 60 (S-7.2)	Make material available by clearing trees near levee. Leave all other trees standing. Prevent material from encroaching to north or south. Begin experimental revegetation study.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Requires inland transport	Private
	20.26	349.2L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion. FWMWG: A(8)		Private
	20.27	348.5L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion. FWMWG: A(8)		Private
	20.28	348.0L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FWMWG: A(8)		Private
	20.29	347.7R	Developed and lowland hardwoods			DSSTF: Adverse impacts on fish and wildlife. Potential for severe erosion.		Federal
	20.30	347.5R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FPMWG: 7 RWG: 1(g, h)		Private

# DISPOSAL ALTERNATIVES

POOL 20 PAGE 6 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Meyer Light 1/20 RM: 344- 345.3	20.31	346.0R	Agricultural field			PPMMG: 2 FMMG: A(8)		
	20.32	345.7R	Lowland hardwoods			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	20.33	345.3L	Lowland hardwoods	- 48.5	Place material in front of levee. Prevent material from agricultural field.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	20.34	343.8R	Lowland hardwoods HD: Historic Disposal Site		Place material in front of levee, in low spots and along shoreline. Minimize encroachment in trees.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	20.35	343.7L	Agricultural field	- 96		DSSTF: Adverse impacts on fish and wildlife.		Private
	20.36	343.7R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. PPMMG: 2 FMMG: A(8)		Private




# DISPOSAL ALTERNATIVES

POOL 20 PAGE 7 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Lock & Dam 20 Approach 1/10 30,000 yd <sup>3</sup> RM: 343.4-344	20.37	343.6R	Lowland hardwoods H7: Historic Disposal Site		Place material in front of levee, in low areas and along shoreline. Minimize encroachment in trees.	USSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	Levee Disposal				In all cases of behind levee disposal, material should be placed along levee r-o-w, not on agricultural land where it is adjacent to levee.			

# DISPOSAL ALTERNATIVES

## POOL 21 PAGE 1 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
L & D Lower 1/20 20,000 yd <sup>3</sup> RM: 342-343	21.1  1.3 (S1)	342.9R	Old field	- 10.4 (S-8.6)	USSTF: Adverse impacts on fish and wildlife.		Private
	21.2	341.6L	Lowland hardwoods HD: Historic Disposal Site		USSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
	21.3	341.5R	Agricultural field		USSTF: Adverse impacts on fish and wildlife.		Private
	21.4	341.2R	Agricultural field		FPMWG: 2 FMMWG: A(1)		Private
	21.5	340.5L	Agricultural field		FMMWG: A(8)		Private
	21.6	340.2L	Dredged material and lowland hardwoods HD: Historic Disposal Site		Place material back in the bank. Keep sand piles shallow. Keep material out of low area at rear of site.		Federal (Mark Twain Refuge)

# DISPOSAL ALTERNATIVES

## POOL 21 PAGE 2 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	21.7	339.8R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FPMWG: 2 FMMWG: A(1)		Private
31.2	21.8	339.7R	Lowland hardwoods	- 277.7	Keep material in low area and out of mature trees. Control return water along railroad and through creek.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	21.9	339.5R	Agricultural field		Ring dike needed. Control return water through creek. Assess economic impact on agricultural land.	DSSTF: Adverse impacts on fish and wildlife.		Private
	21.10	339.4L	Dredged material HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	21.11	338.8L	Agricultural field			FMMWG: A(8), D(1g)		Private
	21.12	338.6L	Agricultural field			FMMWG: A(8), D(1g)		Private

Howards  
1/8  
50,000 yd<sup>3</sup>  
RM: 338.8-  
339.8



# DISPOSAL ALTERNATIVES

POOL 21 PAGE 3 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	21.13	338.6R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FPMWG: 2 FWMWG: A(1, 8, 4), D(1g)		Private
	21.14	338.5R	Old field (inactive quarry)			DSSTF: Adverse impacts on fish and wildlife. FWMWG: A(1), B(8), D(1a, 1d, 1e, 1f, 1i, 1j, 1k, 1L, 1m, 2a, 2b, 2c, 2d, 2f)		Private
	21.15	338.3L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	21.16	338.0R	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	21.17	337.1L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	21.18	337.1R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, potential increase in flood heights. FPMWG: 2 FWMWG: A(1, 8, 4), D(1g)		Private

# DISPOSAL ALTERNATIVES

## POOL 21 PAGE 4 of 9

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL SITE	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
LaGrange Upper 1/10 25,000 yd <sup>3</sup> RM: 337 - 338		21.19	337.0R	Lowland hardwoods HD: Historic Disposal Site		Potential recreation site. Keep in trees.			Federal
		21.20	337.0L	Agricultural field			FWMG: A(8), D(1g)		Private
		21.21	336.7R	Dredged material		RWG request. After nourish beach, place in trees keeping shallow.	DSSTF: Adverse impacts on fish and wildlife, potential increase in flood heights.		Federal/ Private
		21.22	336.7L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Adverse impacts on fish and wildlife, potential increase in flood heights.		Federal
		21.23	336.6R	Developed		Control return water			Private (Gardner-Denver Co.)
LaGrange 1/4 25,000 yd <sup>3</sup> RM: 335.5-336.5	 21.9 (S5)	21.24	336.5R	Developed	- 56.9 (S-8)	Stockpile			




# DISPOSAL ALTERNATIVES

POOL 21 PAGE 5 of 9

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	21.25	336.2L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for erosion and increase in flood heights. Adverse impacts on fish and wild-life resources.		Federal
	21.26	335.0R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife.		Private
	21.27	333.6R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FPMWG: 2 FPMWG: A(1), D(1g)		Private
	21.28	333.6L	Dredged material HD: Historic Disposal Site			DSSTF: Potential for erosion and increase in flood heights. Adverse impacts on fish and wild-life resources.		Federal
	21.29	333.5L						Federal
	21.30	332.7L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FPMWG: A(8), D(1a, 1b, 1c, 1d, 1e, 1g, 2a, 3c)		Private

# DISPOSAL ALTERNATIVES

POOL 21 PAGE 6 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Willow Island 1/20 30,000 yd <sup>3</sup> RM: 332.6-333.6	21.31	332.6R	Lowland hardwoods HD: Historic Disposal Site			DSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Federal
Hogback Island 1/8 35,000 yd <sup>3</sup> RM: 331.5-332.6	21.32 	332.5L	Dredged material HD: Historic Disposal Site		Prevent material from entering trees. RMG beach request. Parameters set by OSIT.	DSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Federal
	21.33 	332-333	Lowland hardwoods	- 192.5 (S-90.9)	Placement in borrow pits on both sides of levee. Minimize encroachment in trees.	DSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.	Federal
	21.34	332.2R	Agricultural field		Keep out of wooded area.	DSTF: Adverse impacts on fish and wildlife. FPMWG: 2 FMMWG: D(1a, 1g, 2b)	Private
	21.35	332.0R	Lowland hardwoods			DSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.	Federal
	21.36 	331.8L	Dredged material HD: Historic Disposal Site		RMG beach request. Prevent material from entering woods. OSIT parameters.	DSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.	Federal

# DISPOSAL ALTERNATIVES

POOL 21 PAGE 7 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Lone Tree Light 1/8 25,000 yd <sup>3</sup> RM: 330.5-331.5	21.37	331.5L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife.		Private
	21.38	331.0R	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal
	21.39	331.0R	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FPMWG: 2		Private
	21.40	329.0R	Lowland hardwoods			DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal
	21.41	328.3L	Dredged material HD: Historic Disposal Site			DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal
	21.42	328.2R	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal



# DISPOSAL ALTERNATIVES

## POOL 21 PAGE 8 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS(+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Quincy Bridge 1/10 30,000 yd <sup>3</sup> RM: 327.1- 327.6	21.43	328.0R	Agricultural field		DSSTF: Adverse impacts on fish and wildlife. FPMWG: 4		Private
	21.44	327.9L	Mowed grass		DSSTF: Adverse impacts on fish and wildlife, potential for erosion. FPMWG: 2 FWMWG: A(1), D(1d)		Private
	21.45	327.7L	Dredged material HD: Historic Disposal Site	- 21	RMG beach request. Do not expand site. Reslope beach. Prevent from entering woods.		Public (Quinnissippi Park)
	21.46	326.7R	Lowland hardwoods HD: Historic Disposal Site		DSSTF: Potential for erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
	21.47	326.1L	Developed		Barging required		Private
	21.48	325.5R	Agricultural field		DSSTF: Adverse impacts on fish and wildlife. FPMWG: 2		Private

# DISPOSAL ALTERNATIVES

POOL 21 PAGE 9 of 9

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (or -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
	Levee Disposal				In all cases of behind levee disposal, material should be placed along levee r-o-w, not on agricultural land where it is adjacent to levee.			



# DISPOSAL ALTERNATIVES

## POOL 22 PAGE 1 of 7

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL SITE	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
	22.1	324.6L	Dredged material			Stockpile. Control return water.	DSSTF: Potential for severe erosion and increase in flood heights.		Public (City of Quincy)
	22.2	324.0R	Developed		- 20.3 (S-4)	Need ring levee at edge of disturbed area. Pump water back out over levee or through drainage district.	DSSTF: Adverse impacts on fish and wildlife, potential for severe erosion.	Behind levee	Private
	22.3	324.0L	Agricultural field				DSSTF: Adverse impacts on fish and wildlife. FWMG: A(8)	Behind levee	Private
	22.4	323.8L	Dredged material and lowland hardwoods HD: Historic Disposal Site			Place in trees; keep piles shallow; prevent from entering backwaters.	DSSTF: Potential for erosion and increase in flood heights. Adverse impacts on fish and wildlife.		Federal
	22.5	323.0R	Agricultural field				DSSTF: Adverse impacts on fish and wildlife.		Private
	22.6	321.0L	Agricultural field				DSSTF: Adverse impacts on fish and wildlife.	Behind levee	Private


# DISPOSAL ALTERNATIVES

PAGE 2 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Northeast Missouri Power 1/4 30,000 yd <sup>3</sup> RM: 319.5-320.5	22.7  18.8 (S3)	320.5R	Developed	- 48.9 (S-4.8)	DSSIF: Adverse impacts on fish and wildlife, potential for erosion.		Private
	22.8	320.1R	Developed		DSSIF: Adverse impacts on fish and wildlife.		Private
	22.9	320.1R	Agricultural field		DSSIF: Adverse impacts on fish and wildlife.	Behind levee	Private
	22.10	320.0L	Lowland hardwoods HD: Historic Disposal Site		FMWG: A(1, 2), D(1a, 1b, 1d)		Federal
	22.11	319.0R	Agricultural field		DSSIF: Adverse impacts on fish and wildlife.		
	22.12  25.5	317.0R	Agricultural levee	- 188.7	DSSIF: Adverse impacts on fish and wildlife.	Behind levee	Private


# DISPOSAL ALTERNATIVES

POOL 22 PAGE 3 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION - LAND USE	IMPACTS IN HABITAT UNITS (+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP - MANAGEMENT
Beebe Island 1/6 30,000 yd <sup>3</sup> RM: 315.8-316.8	22.13 	316.4L	Dredged material HD: Historic Disposal Site		RMG beach request. Endangered species consultation required. Push dead trees into brush pile at rear of site if necessary.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources. FNMWG: C(1)		Federal
	22.14	316.0L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife, and increase in flood heights.		Private
	22.15	315.8R	Agricultural field		Contain material within ring levee. Pump water out.	DSSTF: Adverse impacts on fish and wildlife.		Private
	22.16	314.4R	Dredged material and lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for erosion and increase in flood heights. Adverse impacts on fish and wildlife.		Federal
	22.17	314.0L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife. FNMWG: A(8) RMG: 1(h)	Behind levee	Private
	22.18	313.8L	Lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal



# DISPOSAL ALTERNATIVES

POOL 22 PAGE 4 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN CONDITIONS FOR USE HABITAT UNITS (+or-)	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Whitney Light 1/7 30,000 yd <sup>3</sup> RM: 312.6- 314.3	22.19	313.7R	Lowland hardwoods HD: Historic Disposal Site		DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Private/ Federal
	 22.20	313.7R	Levee	- 71.4	Place material up against levee as far upstream as possible.		Private
	10.5				Contain material within ring levee. Pump water out. Additional cultural data required.	Behind levee	Private
	22.21	313.5R	Agricultural field		DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal
	22.22	313.4L	Dredged material HD: Historic Disposal Site		Contain within ring dike - pump out water.		Federal
	22.23	312.1L	Lowland hardwoods HD: Historic Disposal Site		DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal
	22.24	312.0R	Dredged material HD: Historic Disposal Site		DSSTF: Potential for erosion and increased flood heights. Adverse impacts on fish and wildlife.		Federal

# DISPOSAL ALTERNATIVES

## POOL 22 PAGE 5 of 7

DREDGE CUT	PRIMARY SITE & SIZE (A)	DISPOSAL SITE	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
Turtle Island 1/5 25,000 yd <sup>3</sup> RM: 311.2-312.2	 25	22.25	311.7L	Agricultural field	Alternative 22.26 evaluated	Contain material within ring levee. Pump water out.		Behind levee	Private
	 25	22.26	311.5R	Lowland hardwoods HD: Historic Disposal Site	- 197.5	Place material back from shore and in trees. Prevent material from entering backwaters. Keep piles shallow.	DSSTF: Potential for erosion and increase in flood heights. Adverse impacts on fish and wildlife.		Federal
		22.27	311.4L	Agricultural field		Contain material within ring levee. Pump water out.	DSSTF: Adverse impacts on fish and wildlife.	Behind levee	Private
		22.28	310.7R	Developed					Private (M.F.A. Central Coop)
		22.29	310.0L	Agricultural field			DSSTF: Adverse impacts on fish and wildlife.	Behind levee	Private
		22.30	307.8L	Agricultural field				Behind levee	Private

# DISPOSAL ALTERNATIVES

POOL 22 PAGE 6 of 7

DREDGE CUT	PRIMARY DISPOSAL SITE & SIZE (A)	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS(+or-)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP-MANAGEMENT
Saverton 1/5 35,000 yd <sup>3</sup> RM: 302- 303.5	22.31	306.5L	Agricultural field				Behind levee	Private
	22.32	305.3R	Lowland hardwoods and old field			DSSIF: Adverse impacts on fish and wildlife. FWMWG: D(1a, 1b, 1e, 1i, 1m) RMG: 1g		Private
	22.33	303.5L	Agricultural field		Contain material within ring levee. Pump water out.	DSSIF: Adverse impacts on fish and wildlife. FWMWG: D(1f, 1g, 1L, 1m, 2a, 2b)		Private
	22.34	303.0R	Agricultural field			DSSIF: Adverse impacts on fish and wildlife.		Private
	22.35	303.0L	Aquatic (main channel border) HD: Historic Disposal Site			FWMWG: B(3), C(2), D(3)		Federal
	22.36	303.0R	Lowland hardwoods HD: Historic Disposal Site					Federal



# DISPOSAL ALTERNATIVES

POOL 22 PAGE 7 of 7

ALTERNATIVE	RIVER MILE	HABITAT DESCRIPTION- LAND USE	IMPACTS IN HABITAT UNITS (for -)	CONDITIONS FOR USE	OBJECTIONS	SPECIAL ACCESS REQUIREMENTS	OWNERSHIP- MANAGEMENT
22.37	302.3R	Lowland hardwoods HD: Historic Disposal Site	- 276.5 (S-34.5)	Keep material between rear of site and rail road embankment. Allow water to drain through site and back to river. Minimize size of site. Stockpile. Encourage beneficial use.			Federal
22.38	301.0R	Lowland hardwoods					Federal/ Private
22.39	300.5L	Dredged material and lowland hardwoods HD: Historic Disposal Site			DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Federal
22.40	300.5R	Lowland hardwoods	- 66.8	Minimize encroachment in trees.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
22.41	300.4R	Dredged material and lowland hardwoods HD: Historic Disposal Site		Place in willow trees.	DSSTF: Potential for severe erosion and increase in flood heights. Adverse impacts on fish and wildlife resources.		Private
Levee Disposal				In all cases of behind levee disposal, material should be placed along levee r-o-w, not on agricultural land where it is adjacent to levee.			

Lock & Dam  
22 Lower  
1/10  
15,000 yd<sup>3</sup>  
RW: 300.3-  
300.4

EXHIBIT 3

BASE MAPS  
DISPLAYING DISPOSAL  
ALTERNATIVES

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



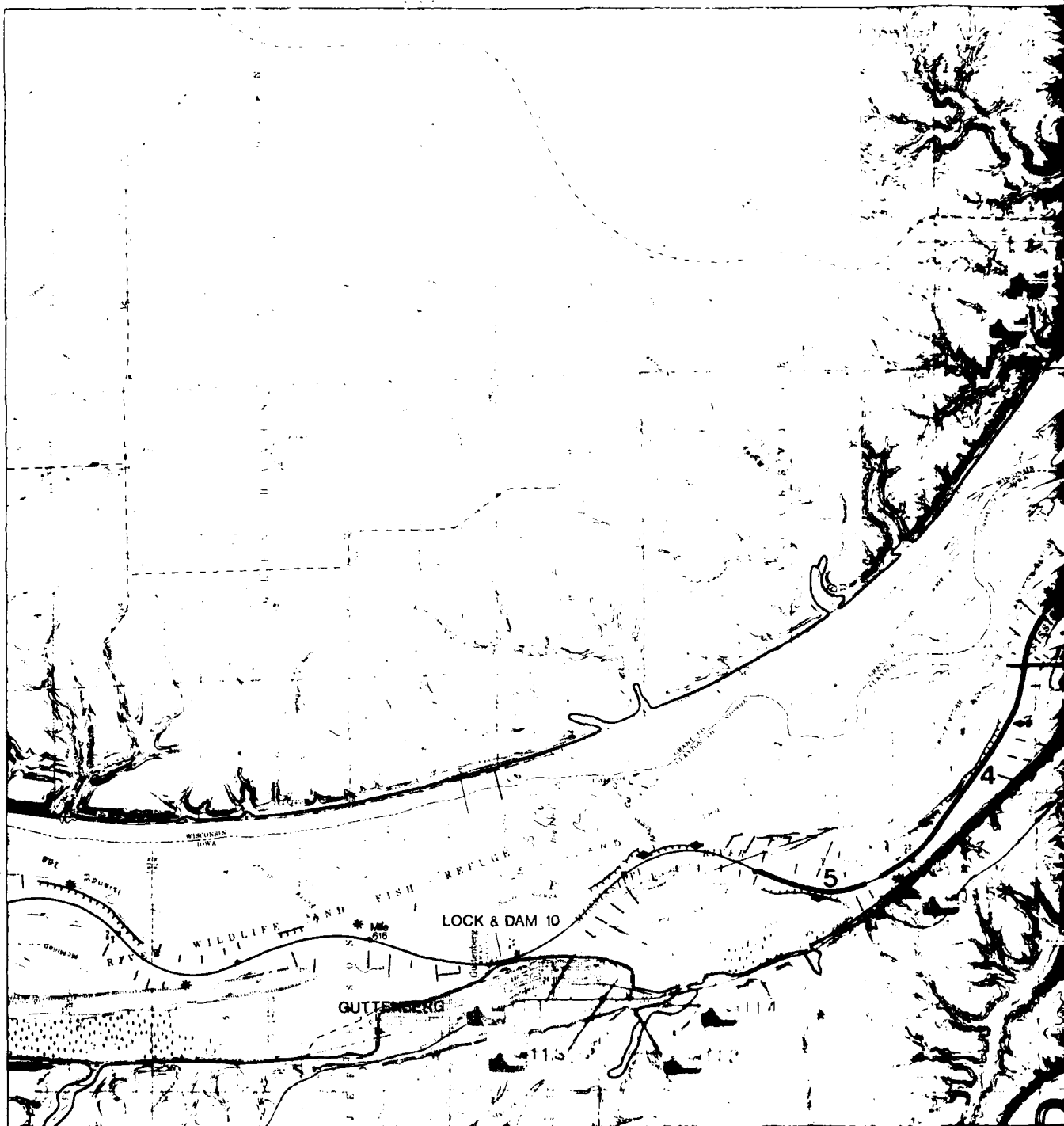
MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

# GREAT RIVER ENVIRONMENTAL ACTION TEAM UPPER MISSISSIPPI RIVER (GREAT II)

(POOL 11 — LOCK AND DAM 10 TO MILE 605)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	4	ANYONE	11.5	100,000
	5	ANYONE	11.5	100,000
	6	ANYONE	11.5	100,000

MILES 0 14

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS



UPPER  
MISSISSIPPI  
RIVER

11

module 1



3

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)

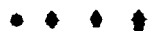


LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 11 — MILE 605 TO MILE 592)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	41	FOREY LANE	592.5	2,000 cu yd
	42	FOREY LANE	592.5	1,000 cu yd

MILES 0 1

# UPPER MISSISSIPPI RIVER ENVIRONMENTAL ATLAS (POOL 11 — MODULE 2)



# UPPER MISSISSIPPI RIVER 11 module 2





# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(PHASE II — MILE 592 TO LOCK AND DAM 11)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

MILES 0 10

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 11 — MODULE 3)



UPPER  
MISSISSIPPI  
RIVER

11

module 3

3

# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(PHASE 12 - LOCK AND DAM 11 TO MILE 574)

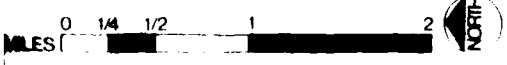


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 1  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
POOL 12 — MODULE 1



UPPER  
MISSISSIPPI  
RIVER

**12**

module 1

AD-A096 443

ARMY ENGINEER DISTRICT ROCK ISLAND IL

F/6 13/2

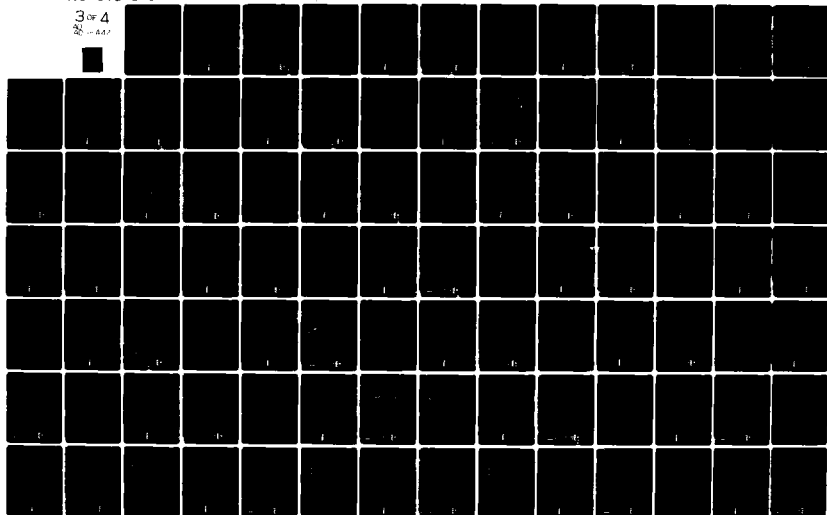
GREAT RIVER ENVIRONMENTAL ACTION TEAM (GREAT II). UPPER MISSISS--ETC(U)

DEC 80

UNCLASSIFIED

NL

3 OF 4  
22 - 447



# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

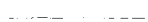
RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



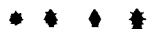
LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS



GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
POOL 12 - MILE 574 TO MILE 567



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 1  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 12 - MODULE 2)



UPPER  
MISSISSIPPI  
RIVER

12

Module 2

3

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



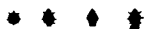
LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

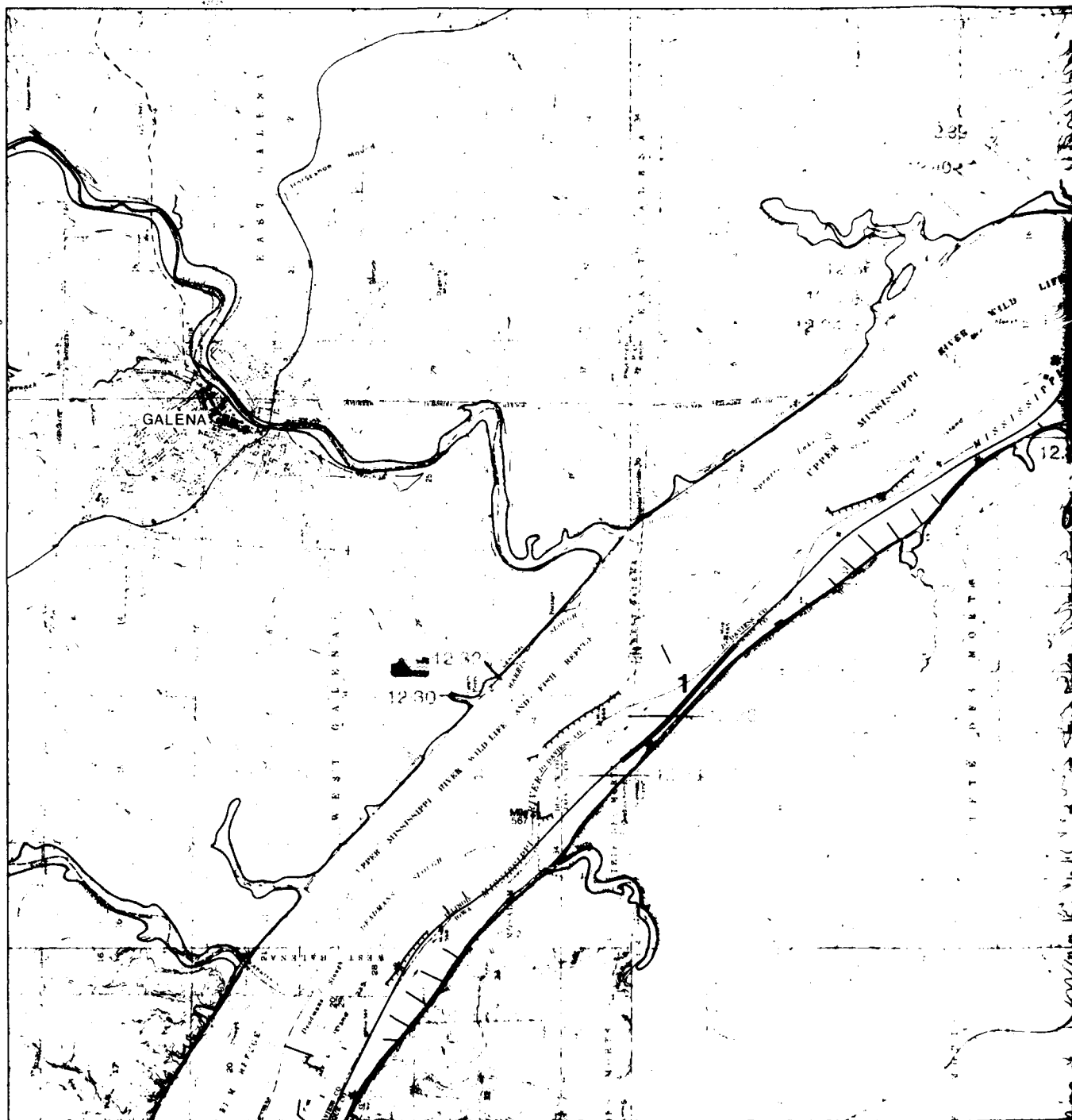


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 12 — MILE 567 TO LOCK AND DAM 12)**

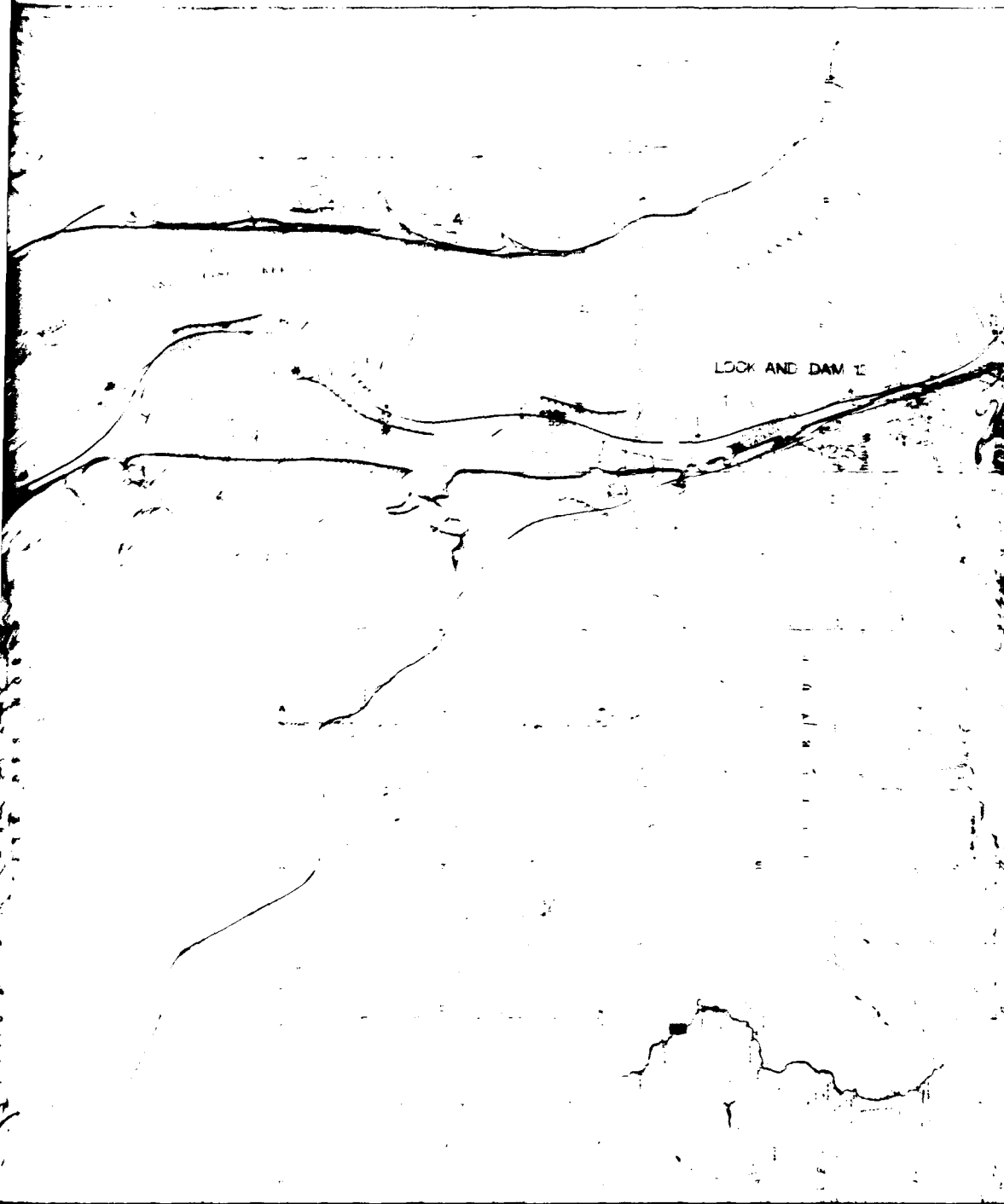


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#1	REAR CUT	12.30	11

0 14  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

(PART 12 - MODULE 3)



UPPER  
MISSISSIPPI  
RIVER

12

module 3

104 102

1 2

NORTH

# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

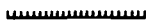
UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



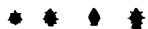
LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

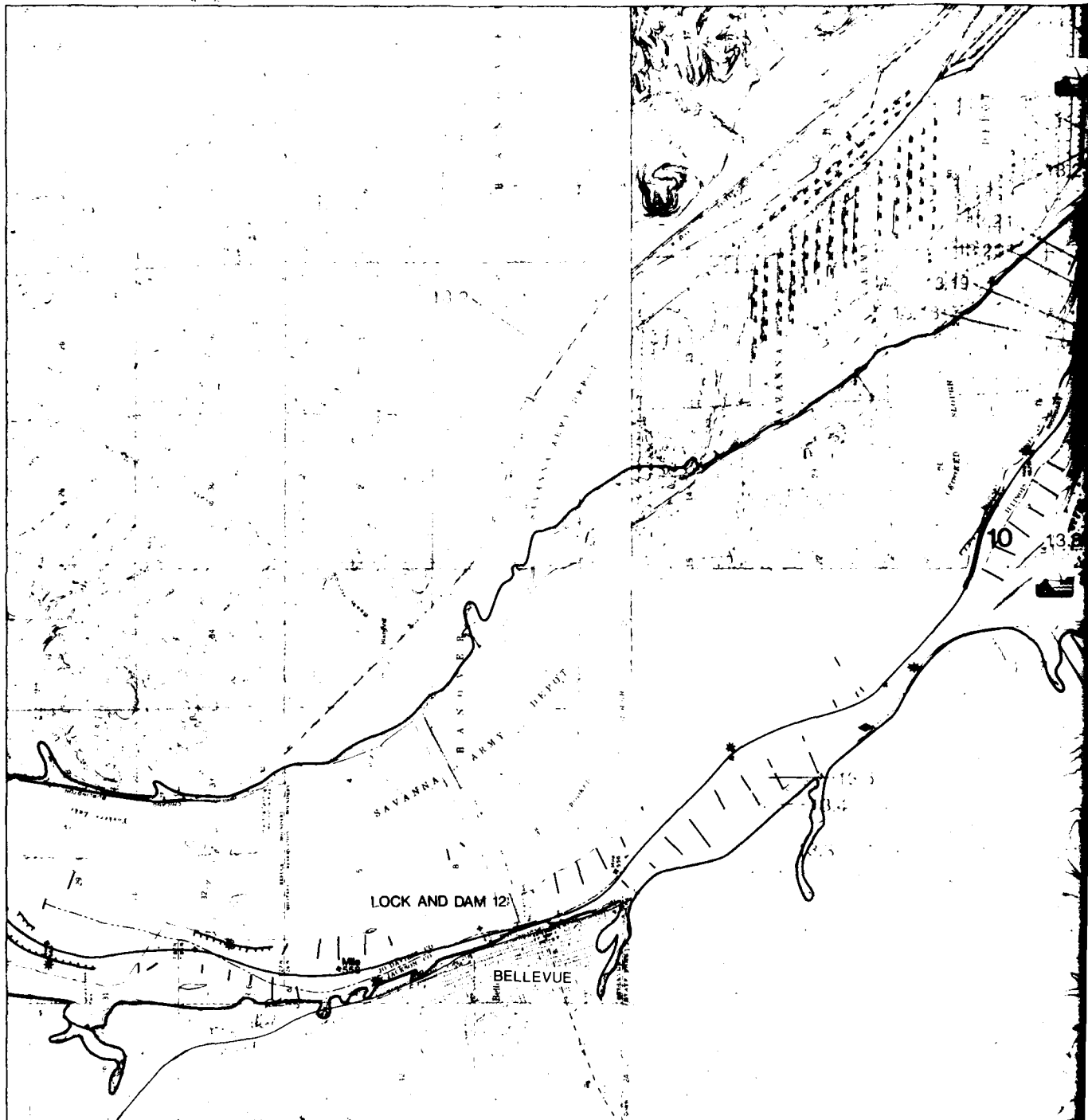


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 13 — LOCK AND DAM 12 TO MILE 549)**



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#9	SND PRAIRIE	548.8-550.8	210,000 cu yd
	#10	INDIAN TRAIL	549.5-551.1	120,000 cu yd

0 1/4 1  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 13 — MODULE 1)



UPPER  
MISSISSIPPI  
RIVER

**13**

module 1



# LEGEND

5  
—

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

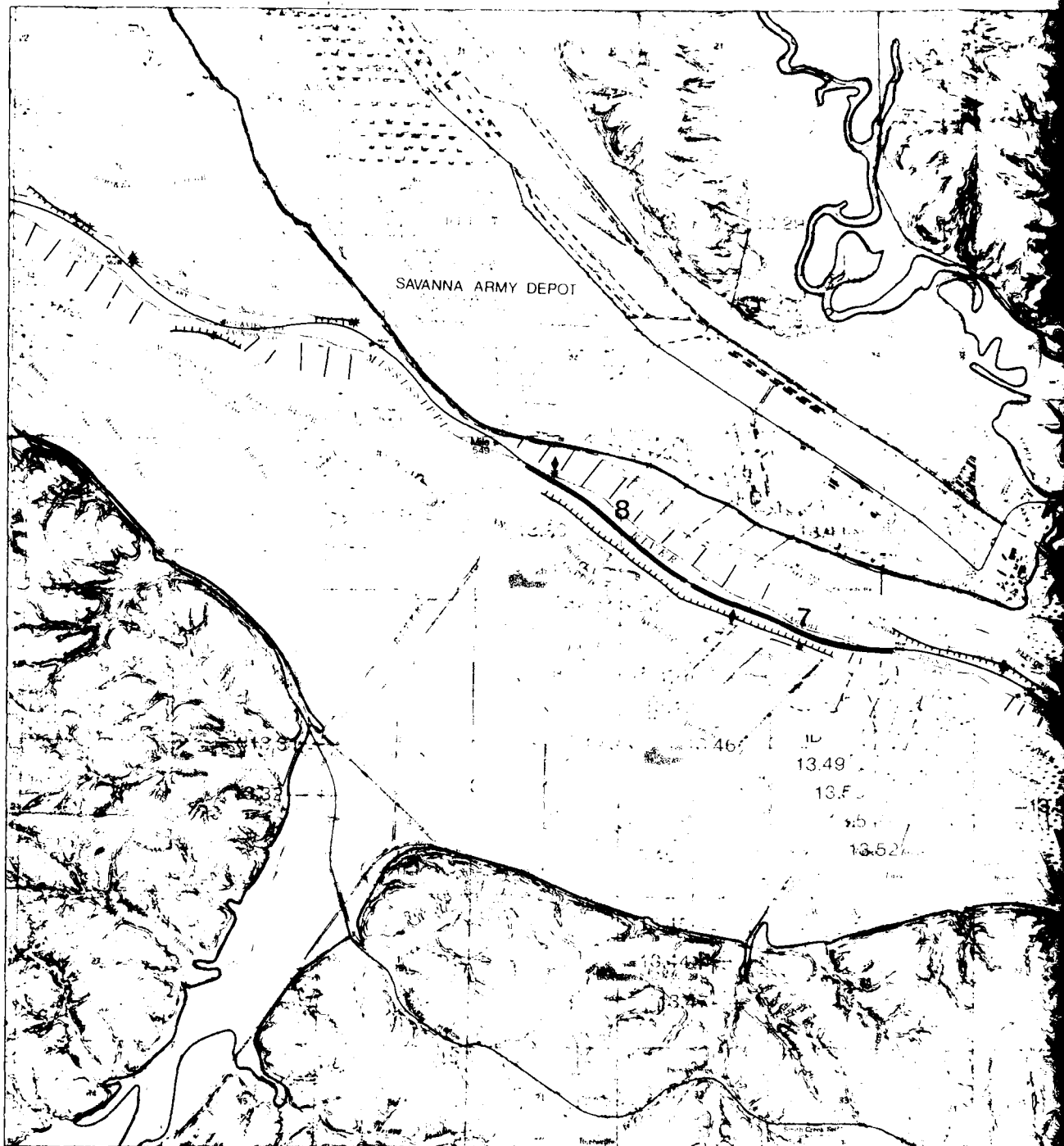


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 13 — MILE 549 TO MILE 541)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	1	WATERWAY	548.5	13.49
	2	WATERWAY	547.5	13.5
	3	WATERWAY	546.5	13.52

0 1/4  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
PREFACE



UPPER  
MISSISSIPPI  
RIVER

13

module 2

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

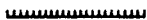
UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938. BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

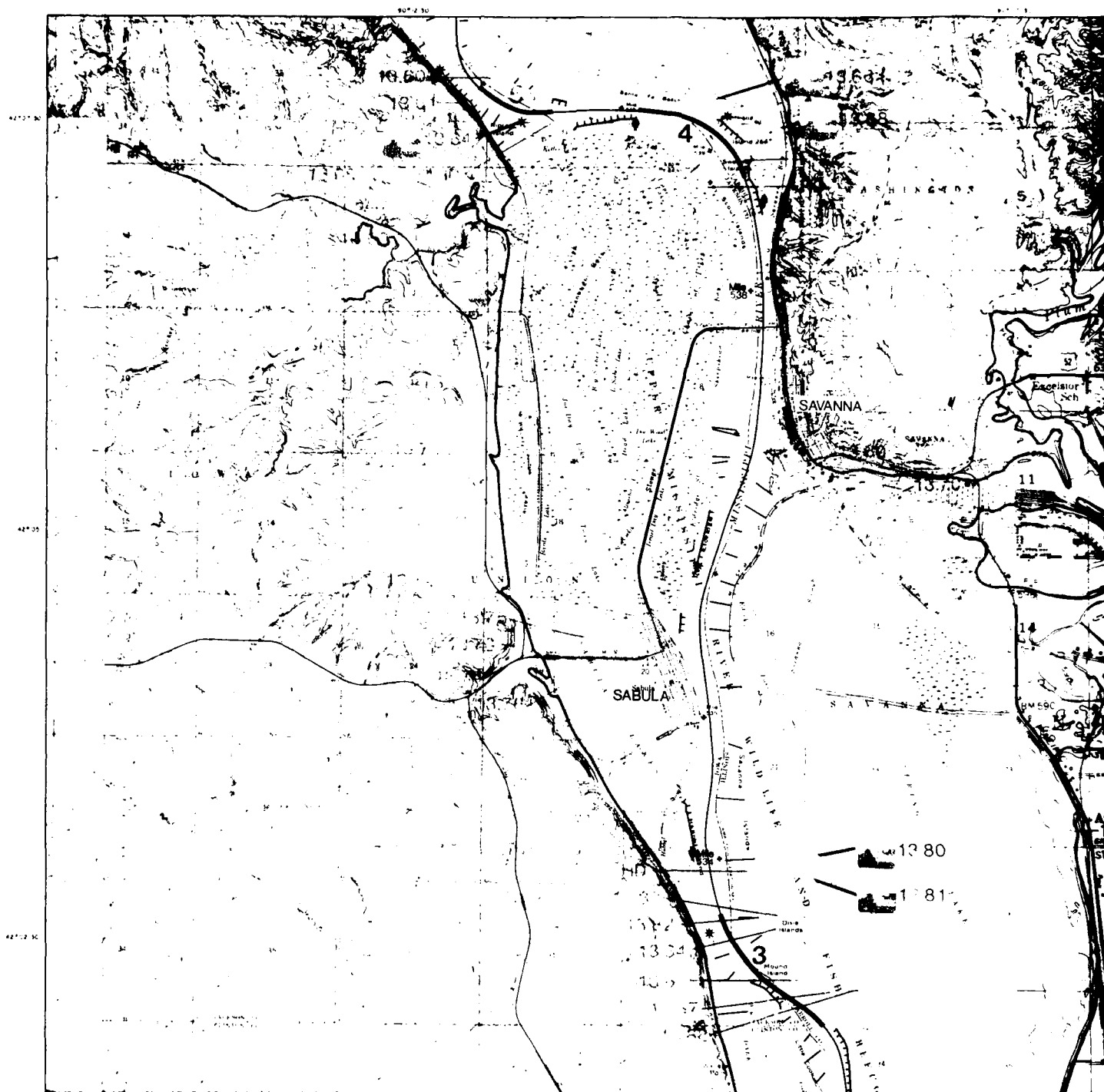


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

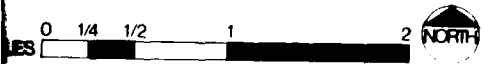
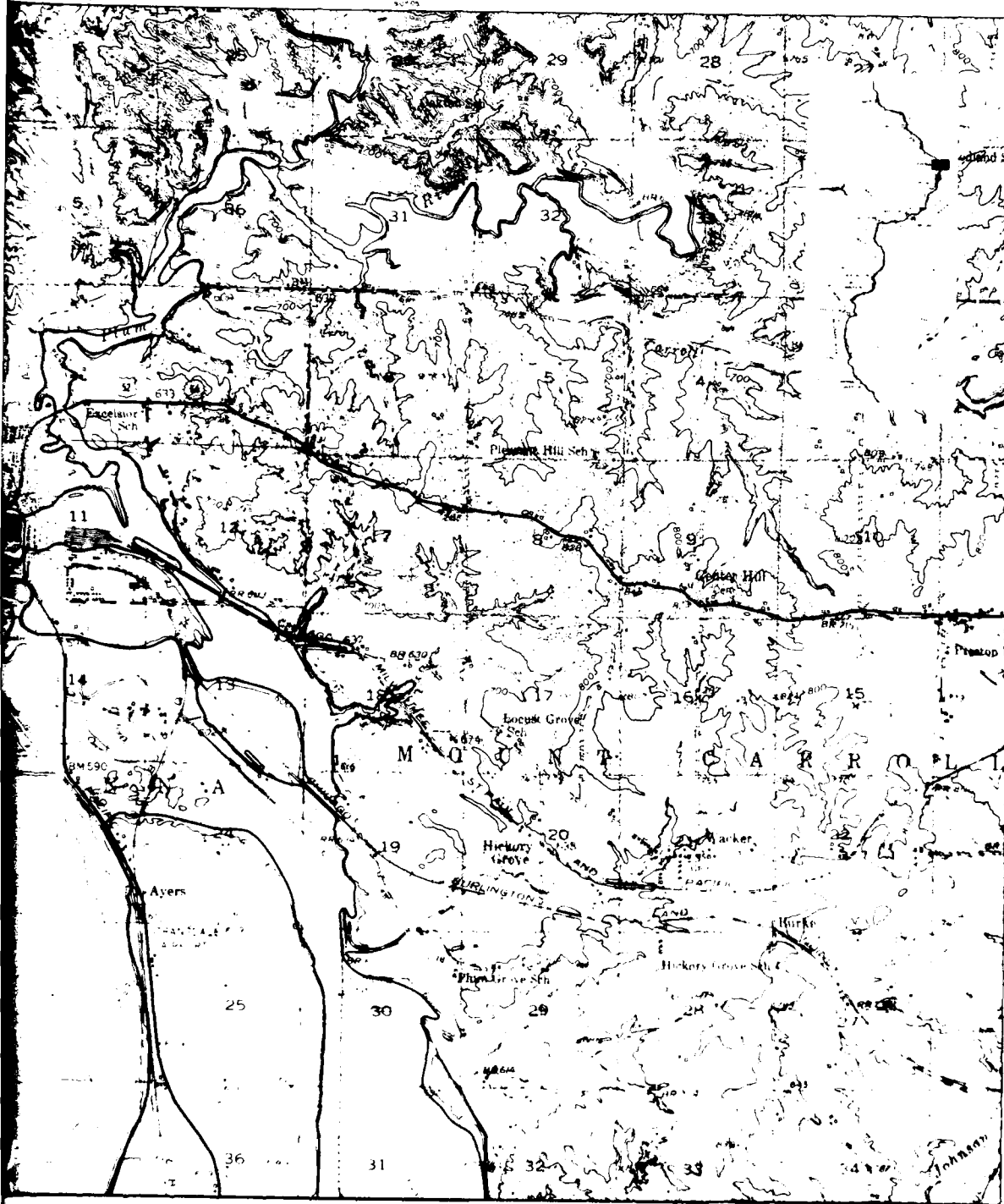
**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 13 — MILE 541 TO MILE 533)**



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	4	AREA 1 MR	541.5-539.5	200,000 cu yd
	4	AREA 2 MR	540.5-538.5	200,000 cu yd
	5	LANSVILLE LIMP	540.5-538.5	200,000 cu yd
	3	AREA 3 MR	538.5-536.5	200,000 cu yd

0 1/4 1/2  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 13 - MODULE 3)



UPPER  
MISSISSIPPI  
RIVER

**13**

Module 3

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

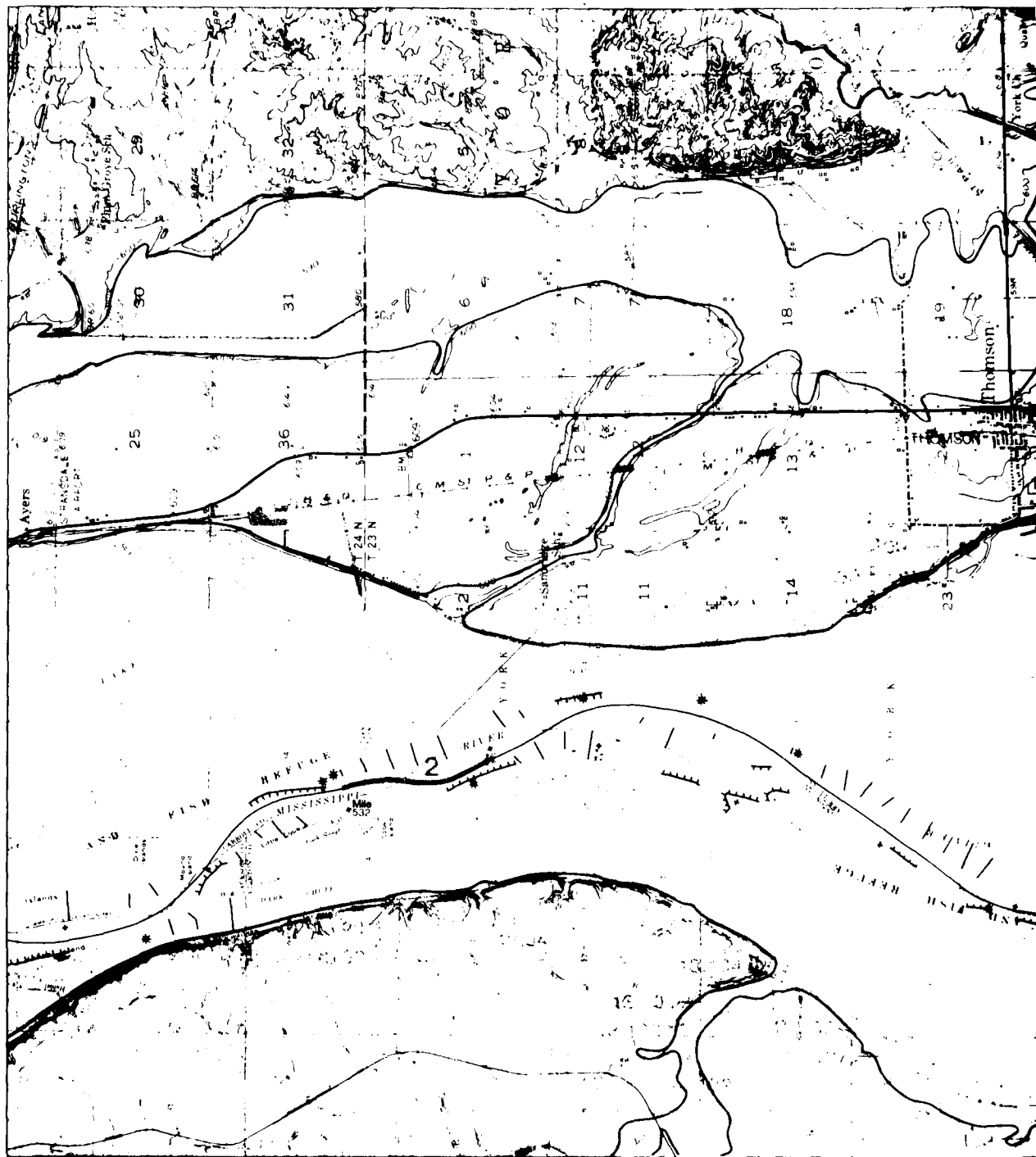


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(POL 13 — MILE 533 TO LOCK AND DAM 13)

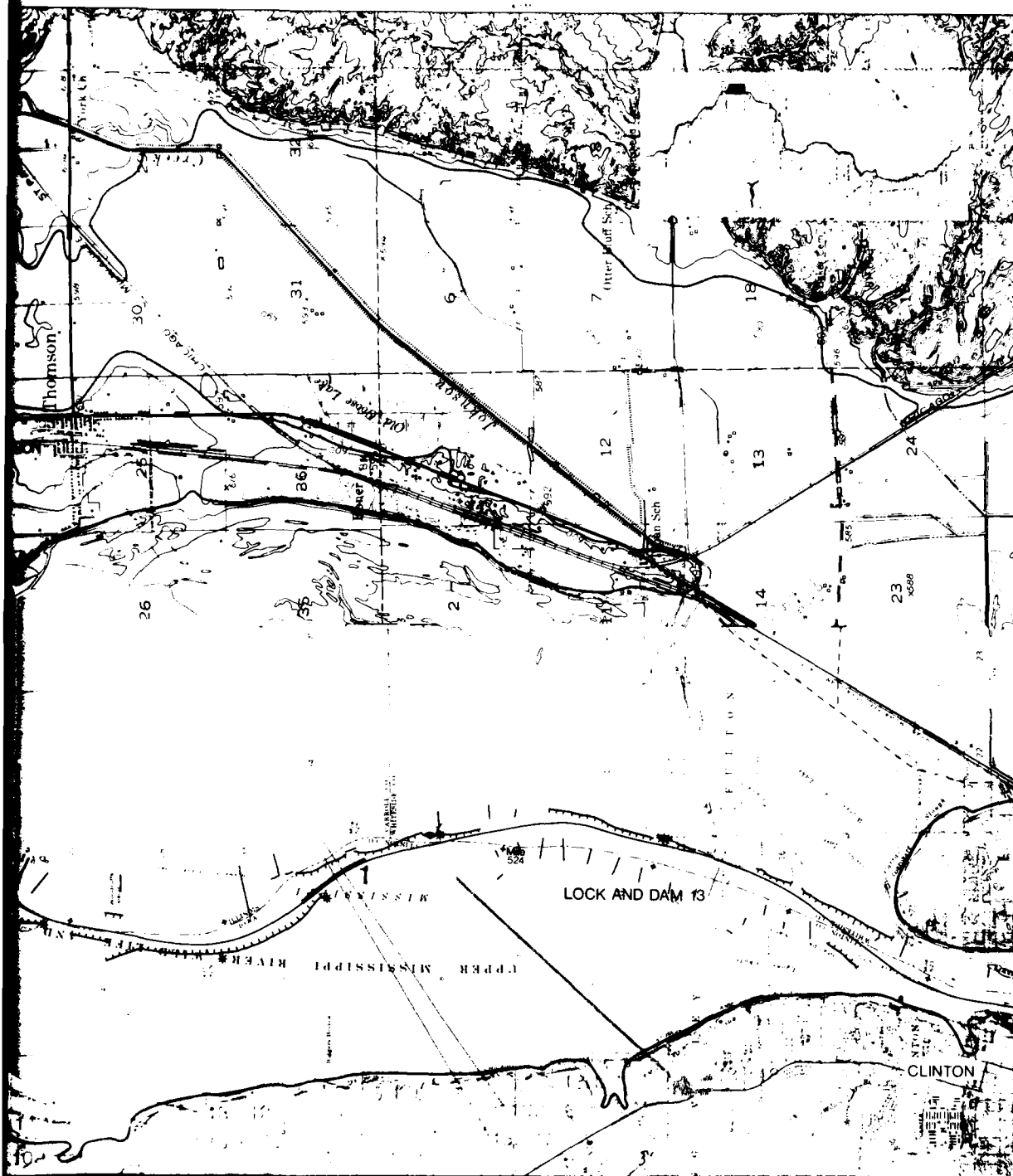


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	01	1999-2000	533.00	1,000,000
	02	2000-2001	533.00	1,000,000

0  
MILES



UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 13 — MODULE 4)



0 1/4 1/2 1 2  
MILES



UPPER  
MISSISSIPPI  
RIVER

13

module 4

# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

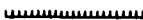
UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

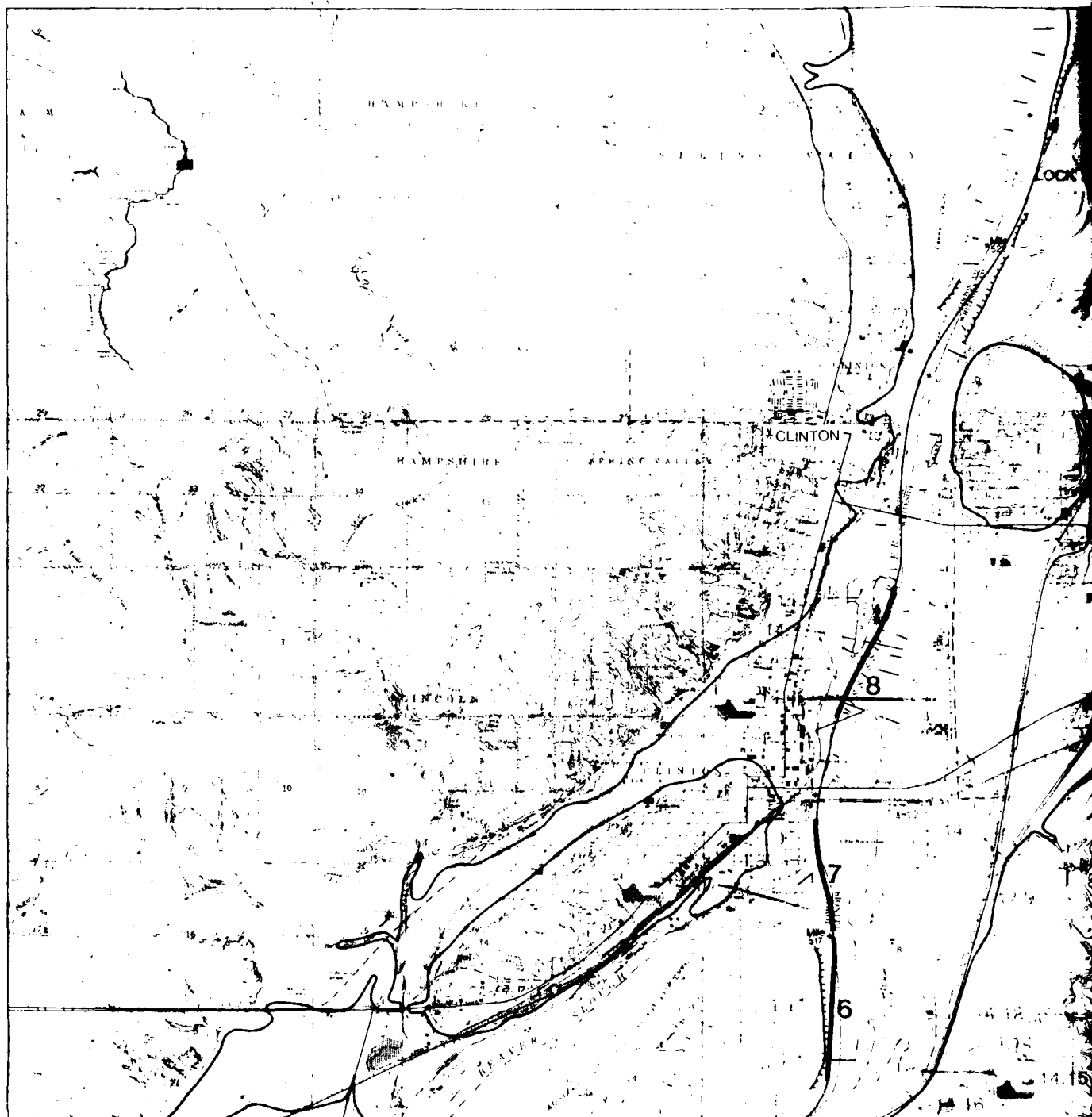


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 14 — LOCK AND DAM 13 TO MILE 516)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	1	BEAVER SLOPE	516.0	100,000
	2	BEAVER SLOPE	516.0	100,000
	3	BEAVER SLOPE	516.0	100,000

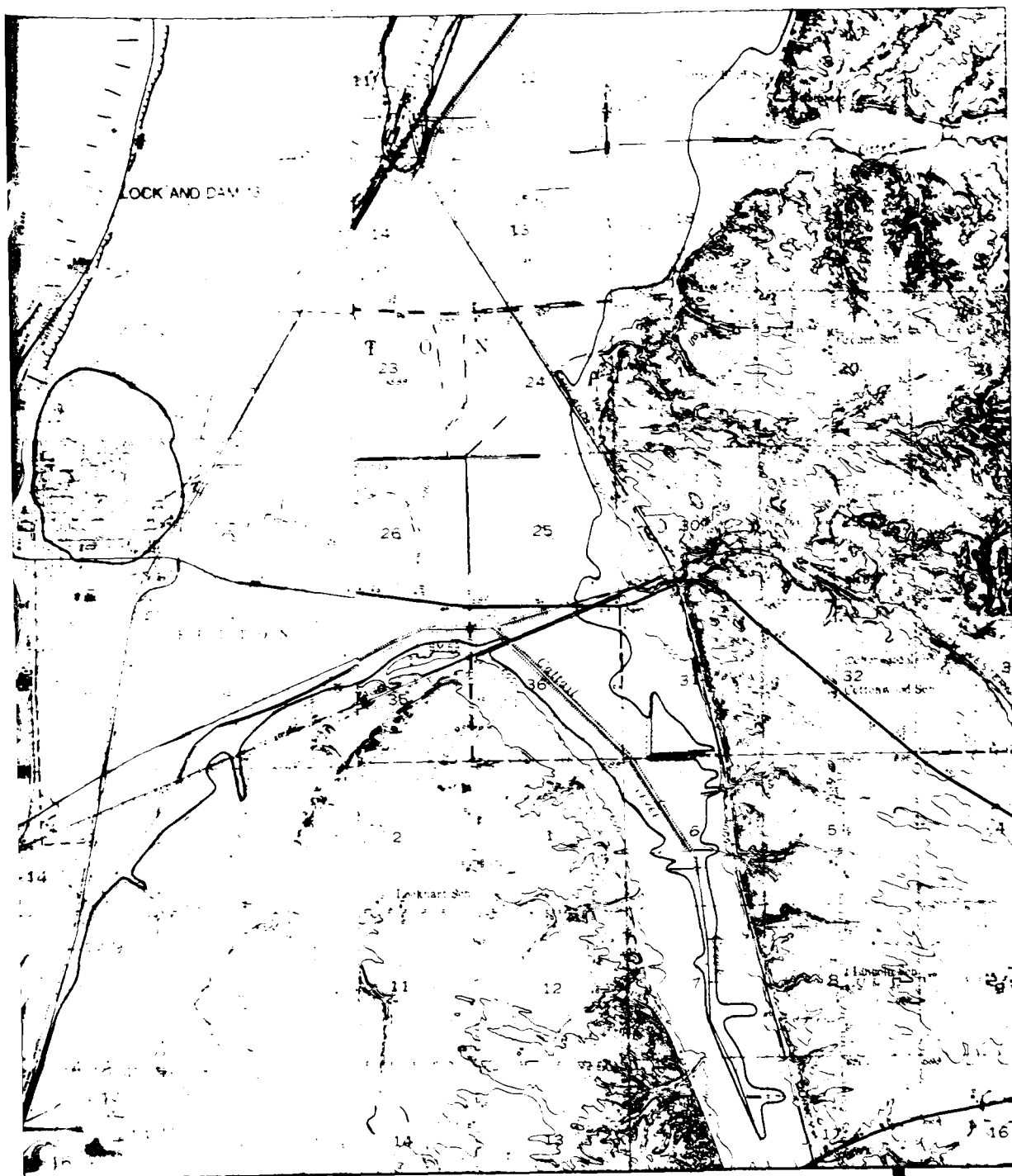
MILES 0 1/4 1/2

2

1

# UPPER MISSISSIPPI RIVER ENVIRONMENTAL ATLAS

POOL 14 - MODULE 1



UPPER  
MISSISSIPPI  
RIVER

**14**

module 1

0 14 12 1 2 NORTH

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

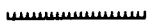
UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938. BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

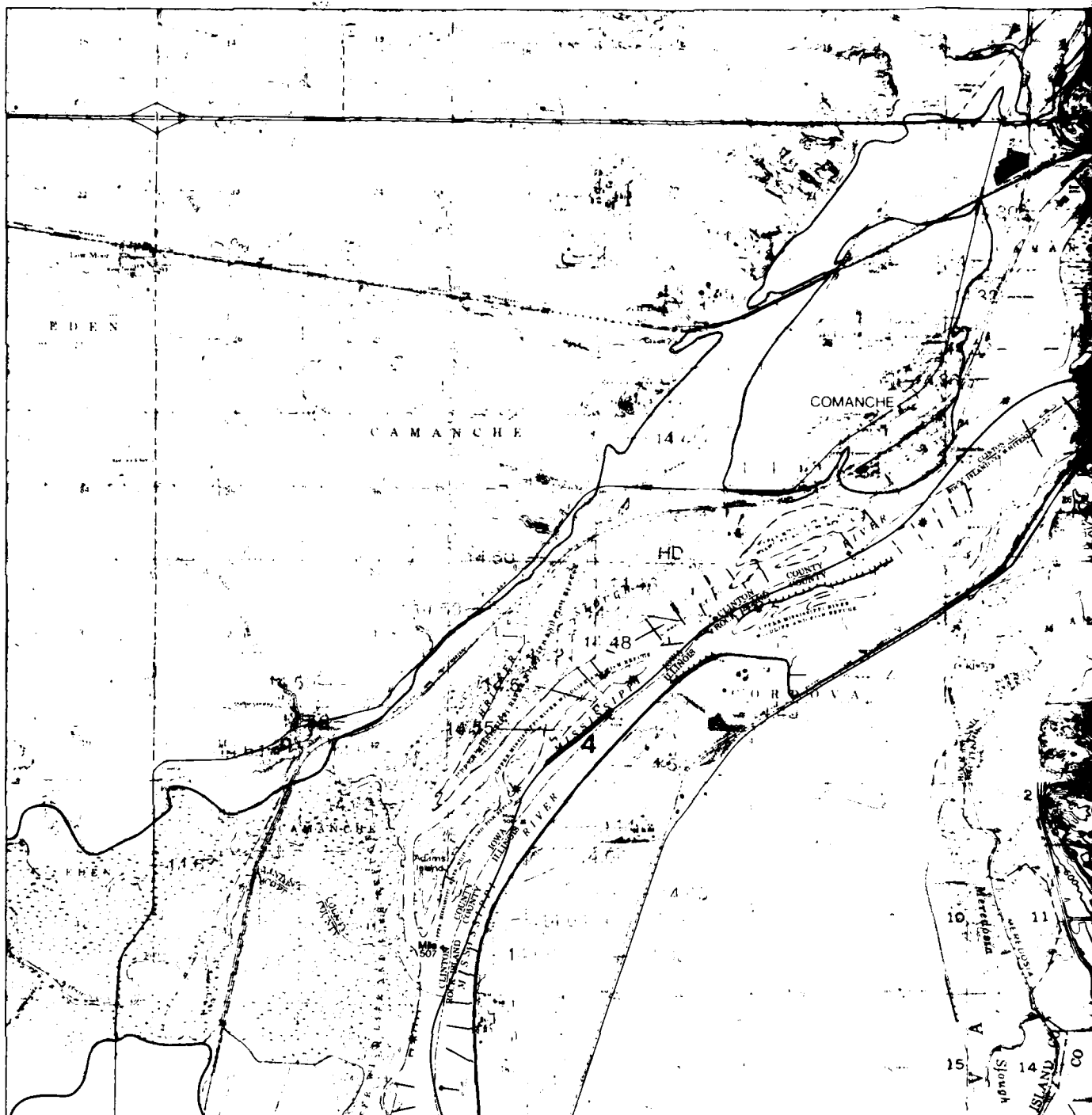


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 14 — MILE 516 TO MILE 507)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	1	NORM. ISLAND DREDGE	14.48	10,000 cu yd
	2	ISLAND	14.50	10,000 cu yd

0 1/4 1/2  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 14 - MODULE 2)



UPPER  
MISSISSIPPI  
RIVER

**POOL 14**

Module 2

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS



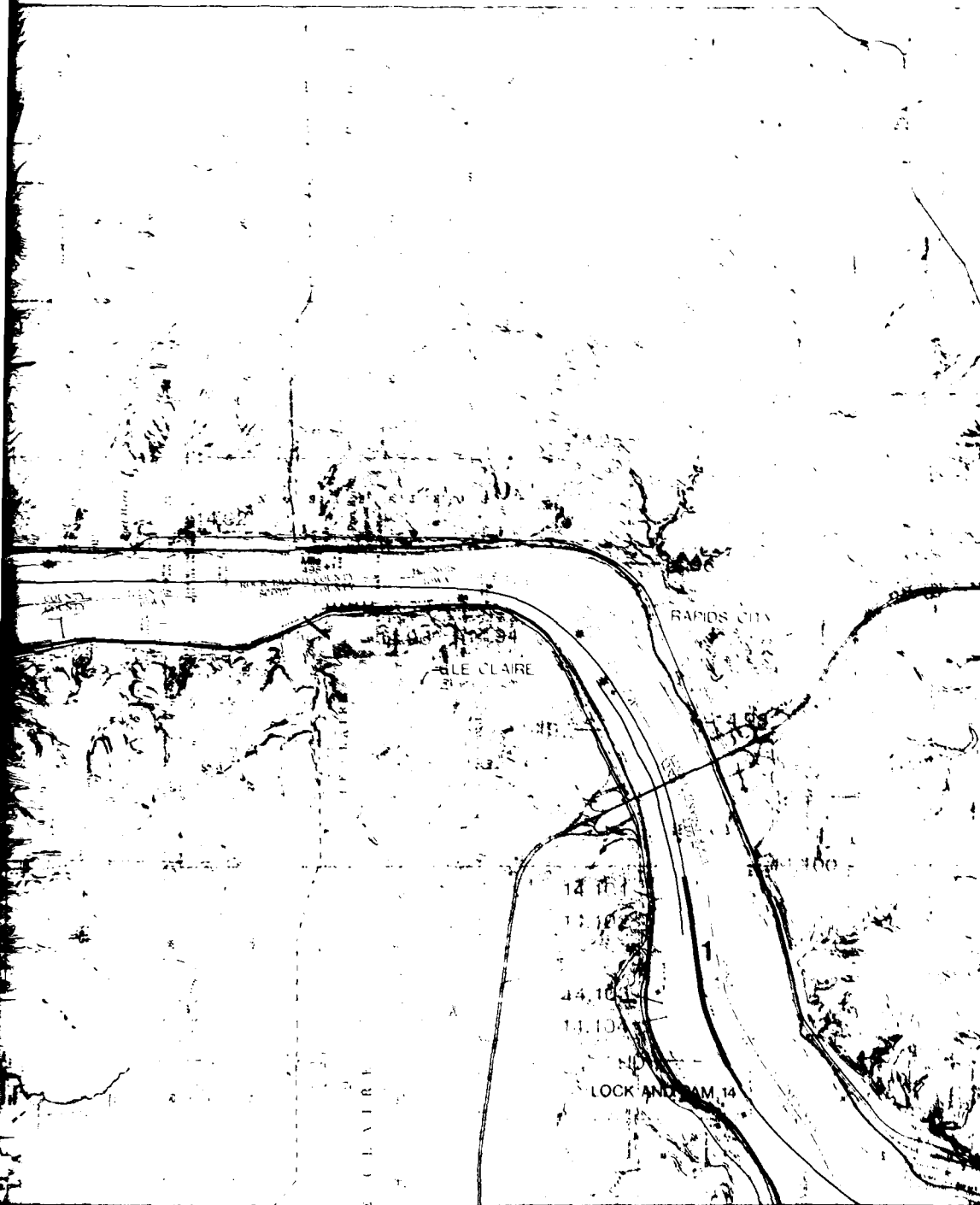
GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER GREAT RIVER

PHOTOGRAPHIC INTERPRETATION OF AERIAL PHOTOGRAPHS



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	DATE CUT (YEAR, MONTH, DAY)

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
FOOT 14 - MOBILE



UPPER  
MISSISSIPPI  
RIVER

14

module 3

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE



UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY

(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT III)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

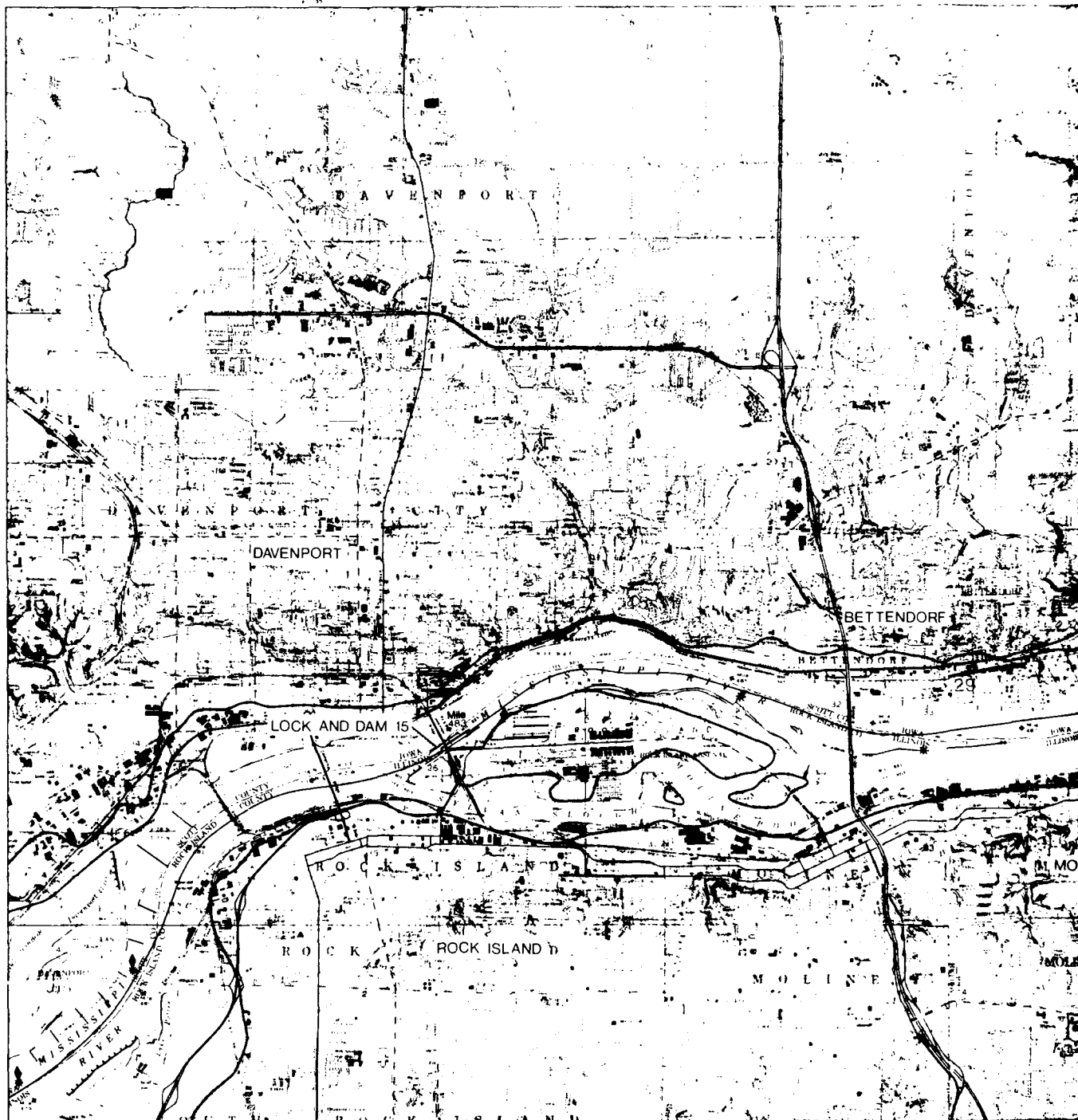


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 15 — LOCK AND DAM 14 TO LOCK AND DAM 15)**

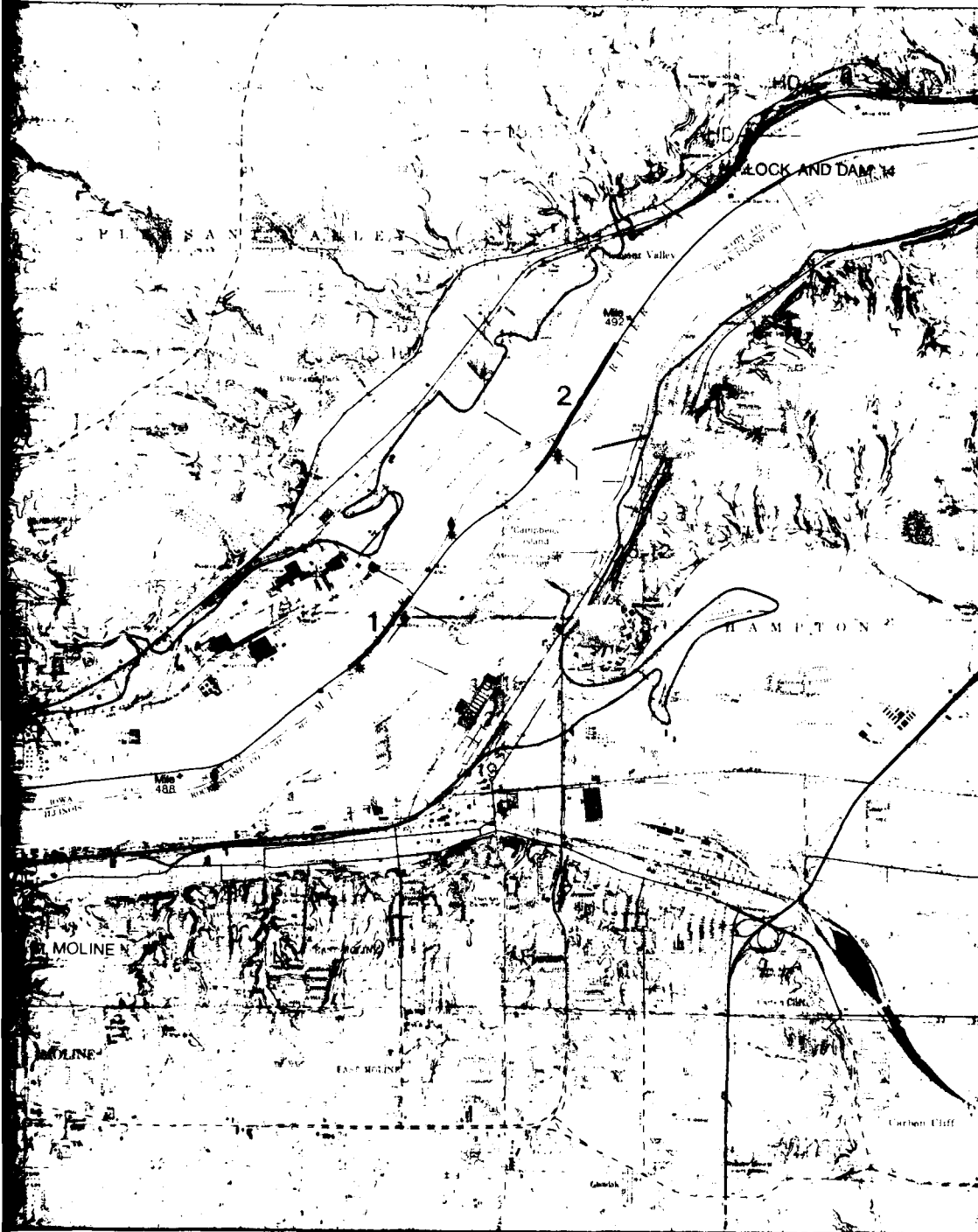


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#1	ADRIAN LAND	48.5-49.5	100,000
	#2	ADRIAN LAND	49.5-50.5	100,000

0 1/4 1/2  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

(POOL 15 — MODULE 1)



UPPER  
MISSISSIPPI  
RIVER

15

module 1

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 16 — LOCK AND DAM 15 TO MILE 469)**

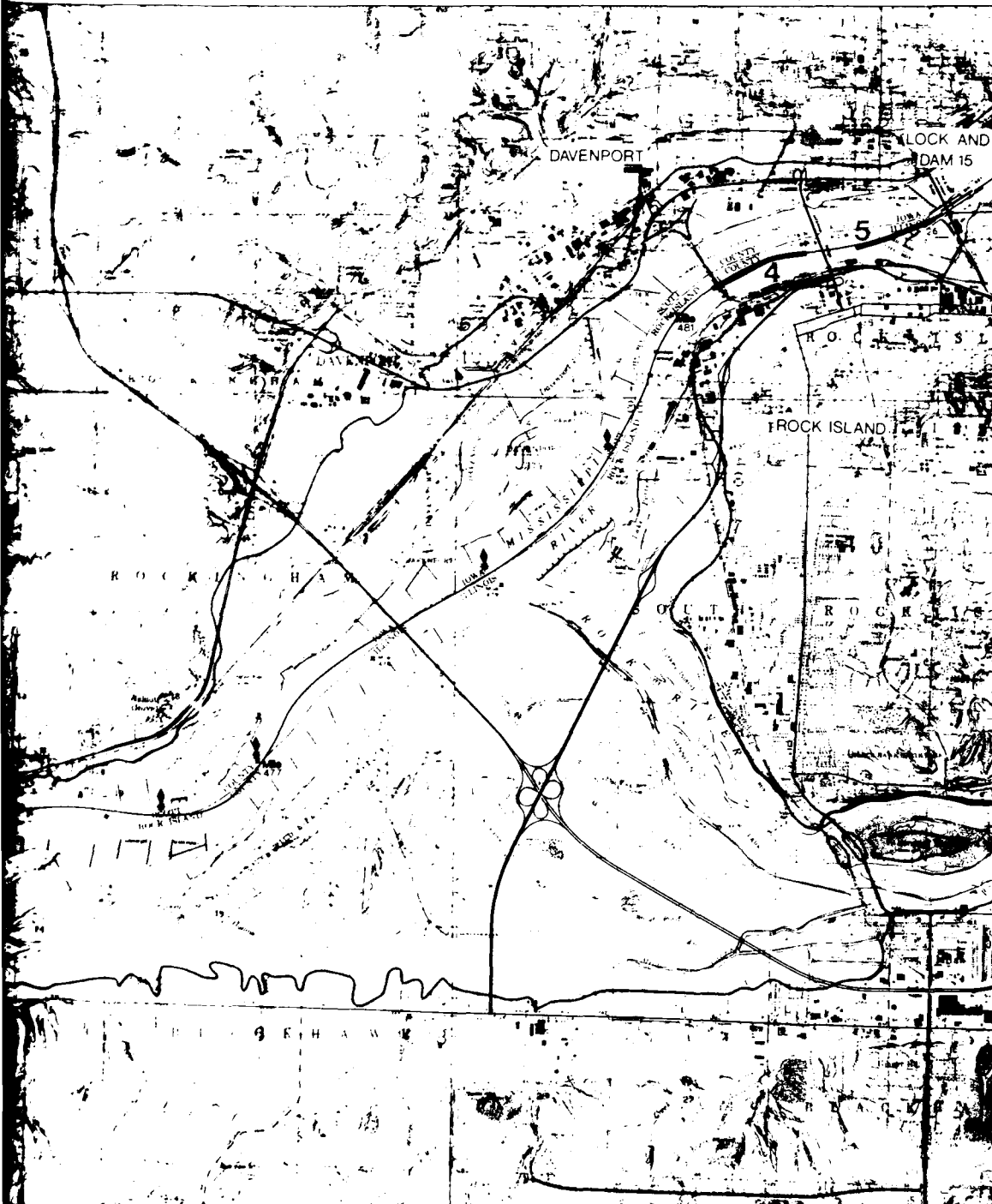


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	1	WINDY	16.38	10,000 cu yd
	2	WINDY	16.38	10,000 cu yd
	3	WINDY	16.38	10,000 cu yd
	4	WINDY	16.38	10,000 cu yd

MILES 0 1/4 1/2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

(POOL 16 - MODULE 1)



UPPER  
MISSISSIPPI  
RIVER

16

module 1





# LEGEND

5



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



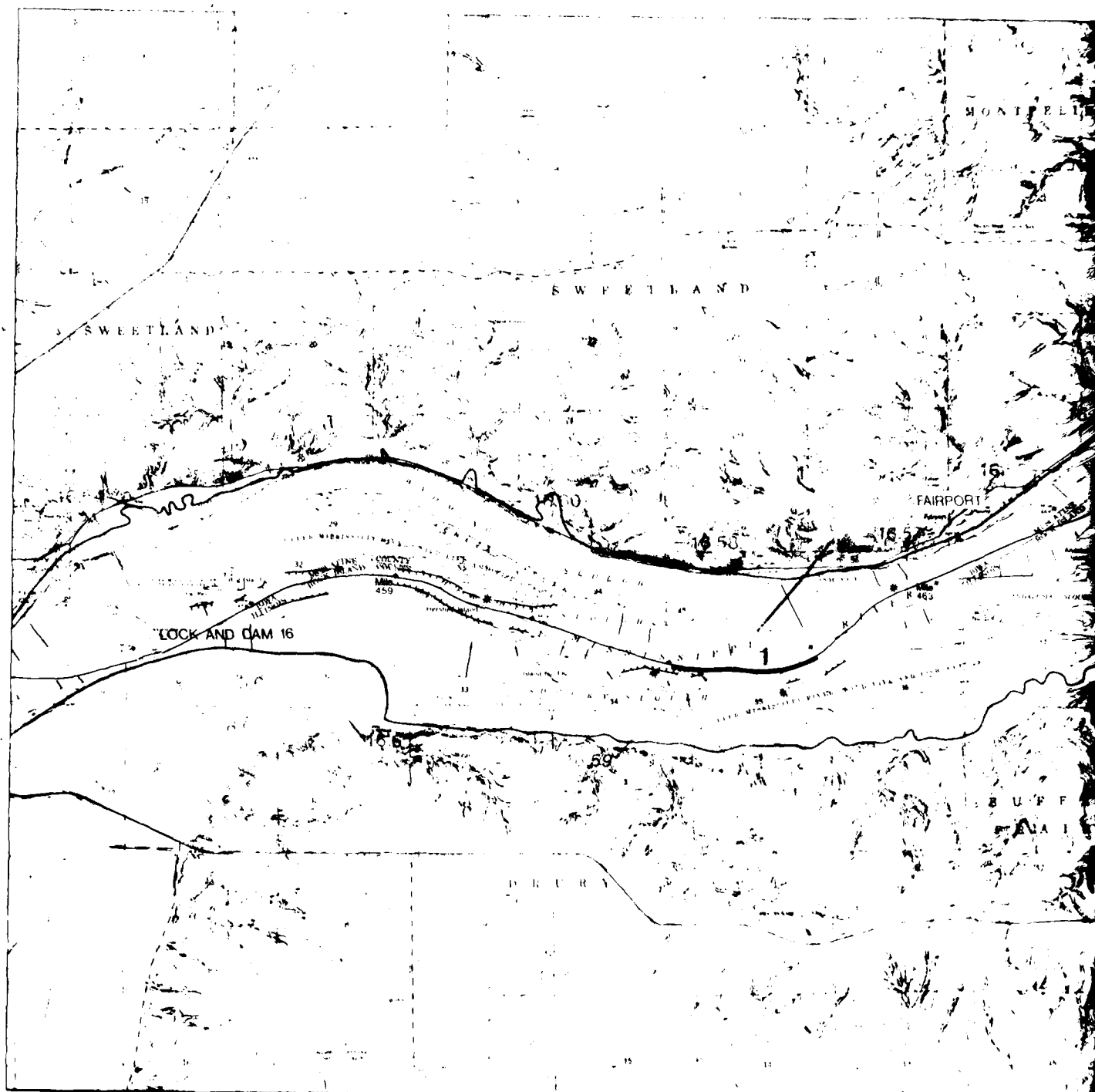
MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

# GREAT RIVER ENVIRONMENTAL ACTION TEAM UPPER MISSISSIPPI RIVER (GREAT II)

(POOL 16 — MILE 469 TO LOCK AND DAM 16)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 14 1/2  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

1980-1981



UPPER  
MISSISSIPPI  
RIVER

16

module 2

NORTH

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

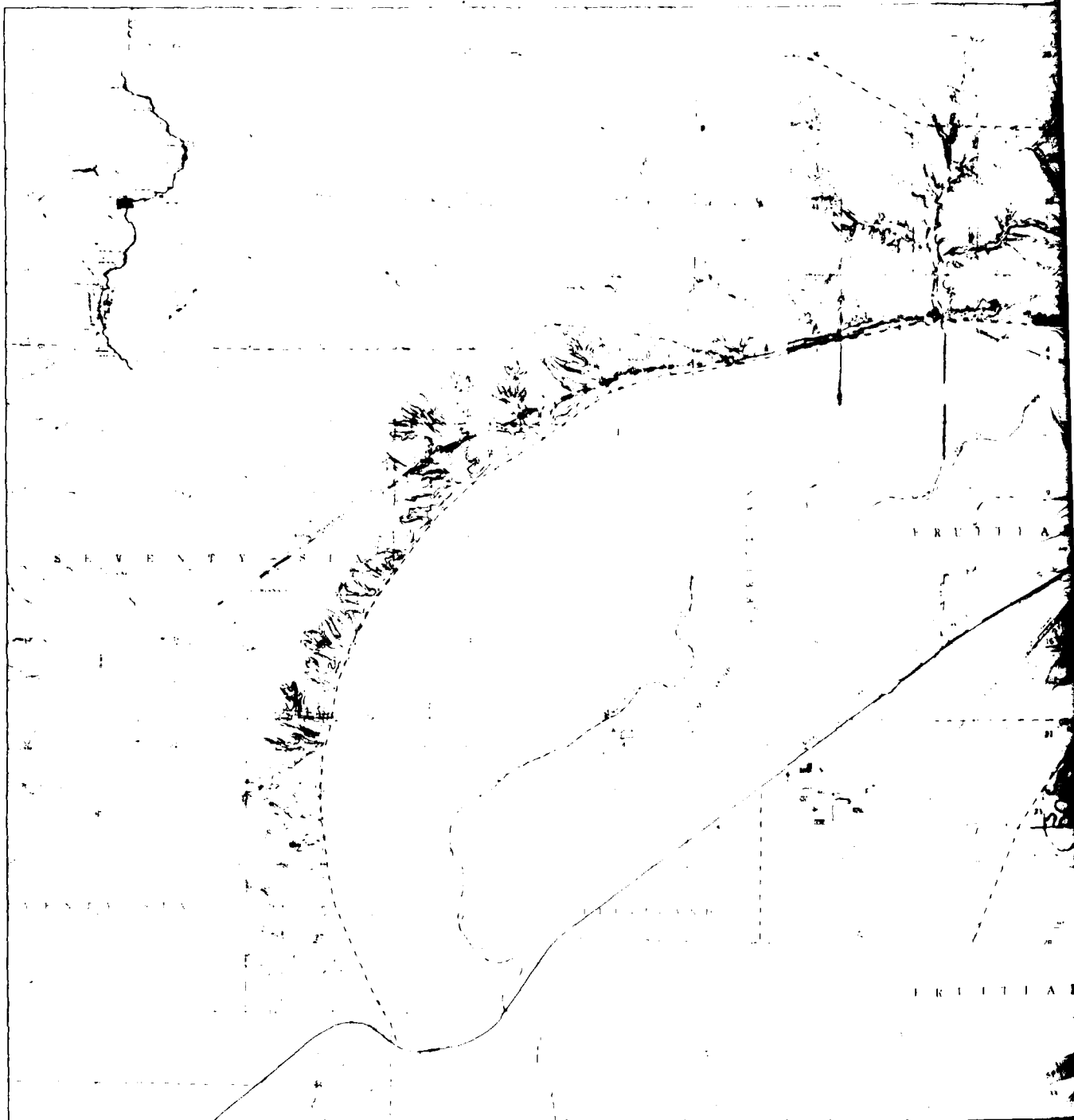


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

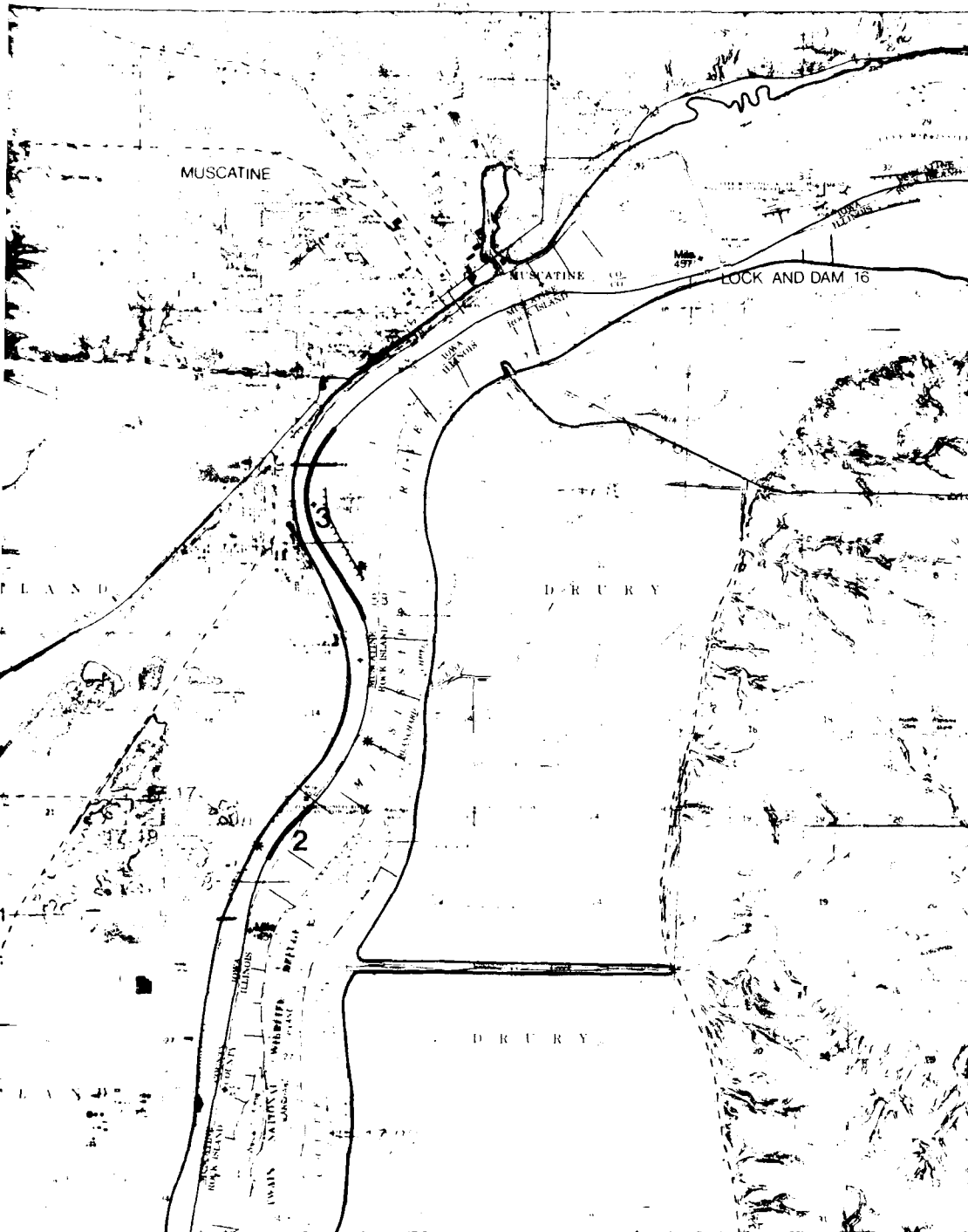
**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 17 — LOCK AND DAM 16 TO MILE 450)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	1	WABASH RIVER	1000	100,000
	2	MISSOURI RIVER	1000	100,000

0 1/4 1/2  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 17 - MODULE 1)



UPPER  
MISSISSIPPI  
RIVER


**17**

module 1


# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION

 14.52

PRIMARY DISPOSAL SITE

 17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938 BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM



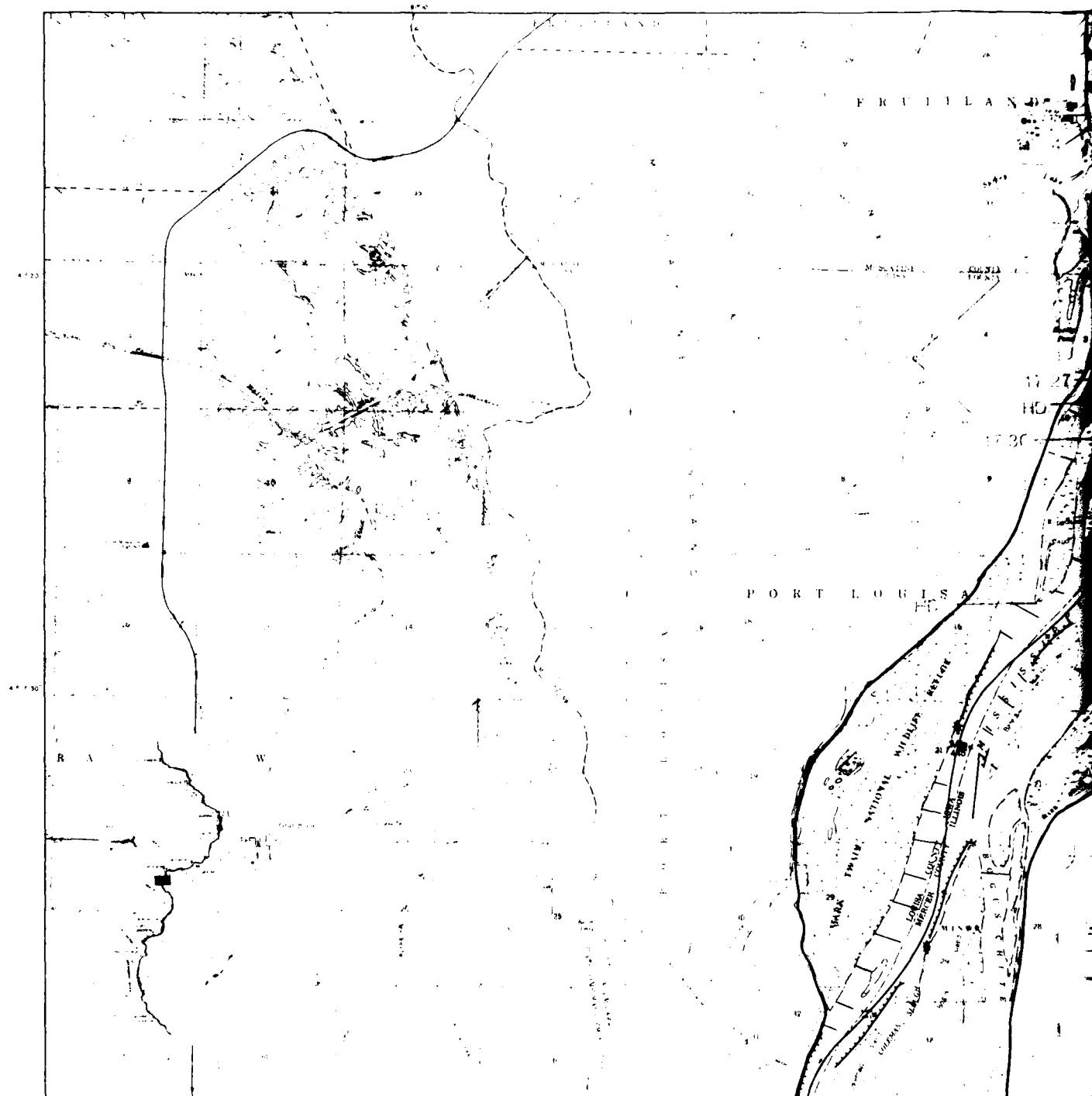
MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

# GREAT RIVER ENVIRONMENTAL ACTION TEAM UPPER MISSISSIPPI RIVER (GREAT II)

(POOL 17 — MILE 450 TO MILE 443)



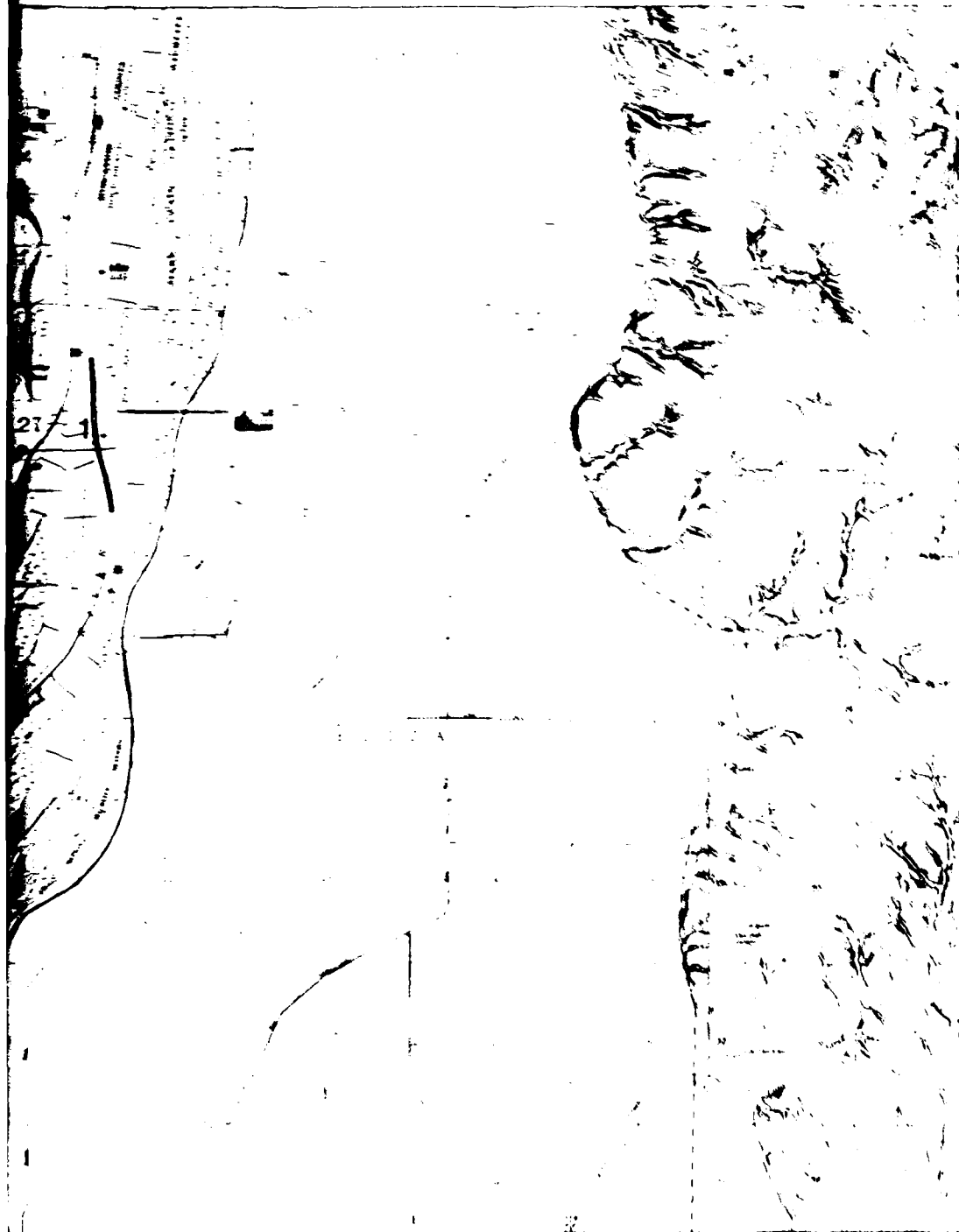
DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#1	BAG LEAN	443.5	10,000

0 1/4 1/2  
MILES



UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

PAUL J. H. M. O. 1992



1/2 1 2 NORTH

UPPER  
MISSISSIPPI  
RIVER

17

module 2

12

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

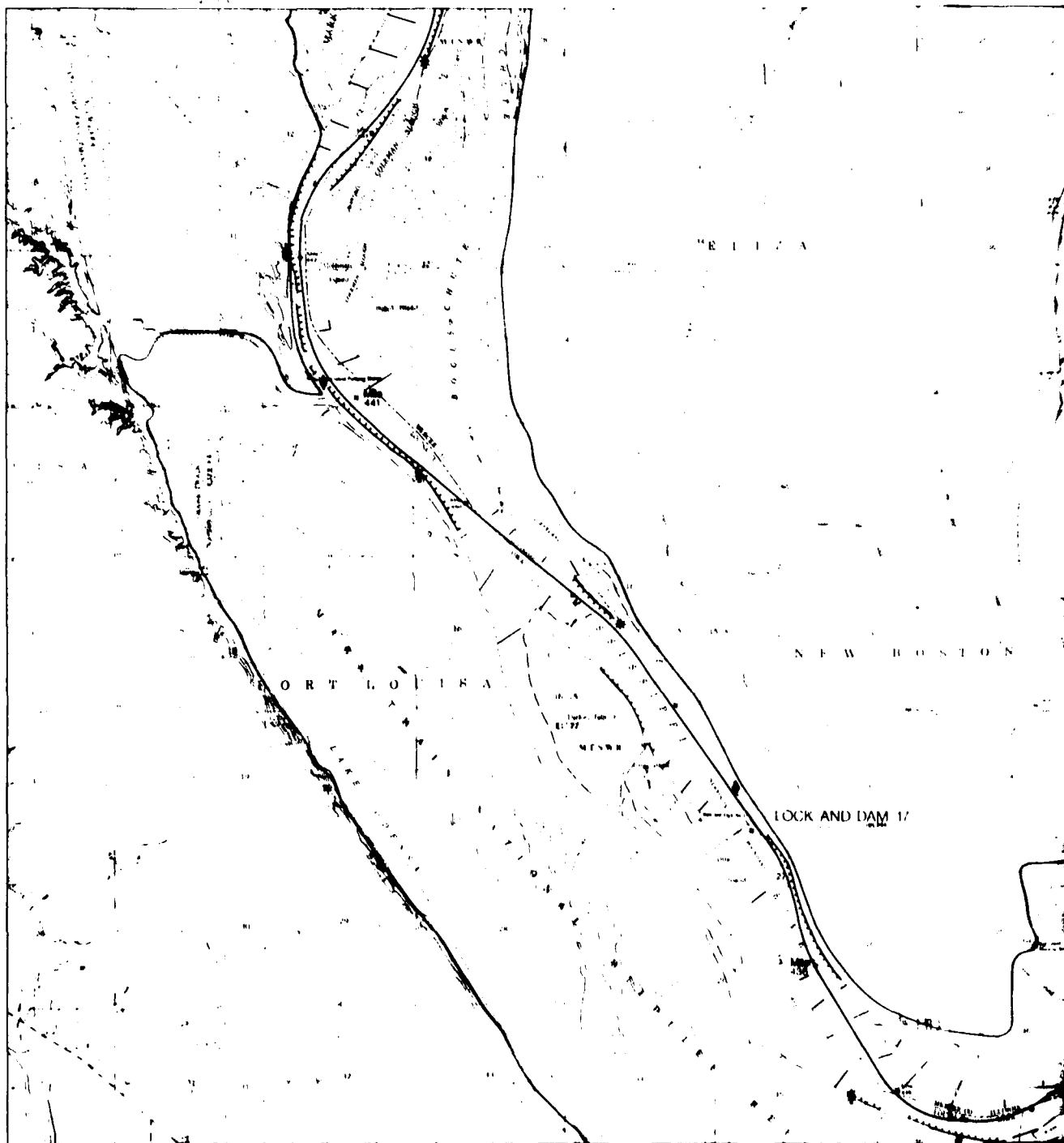


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

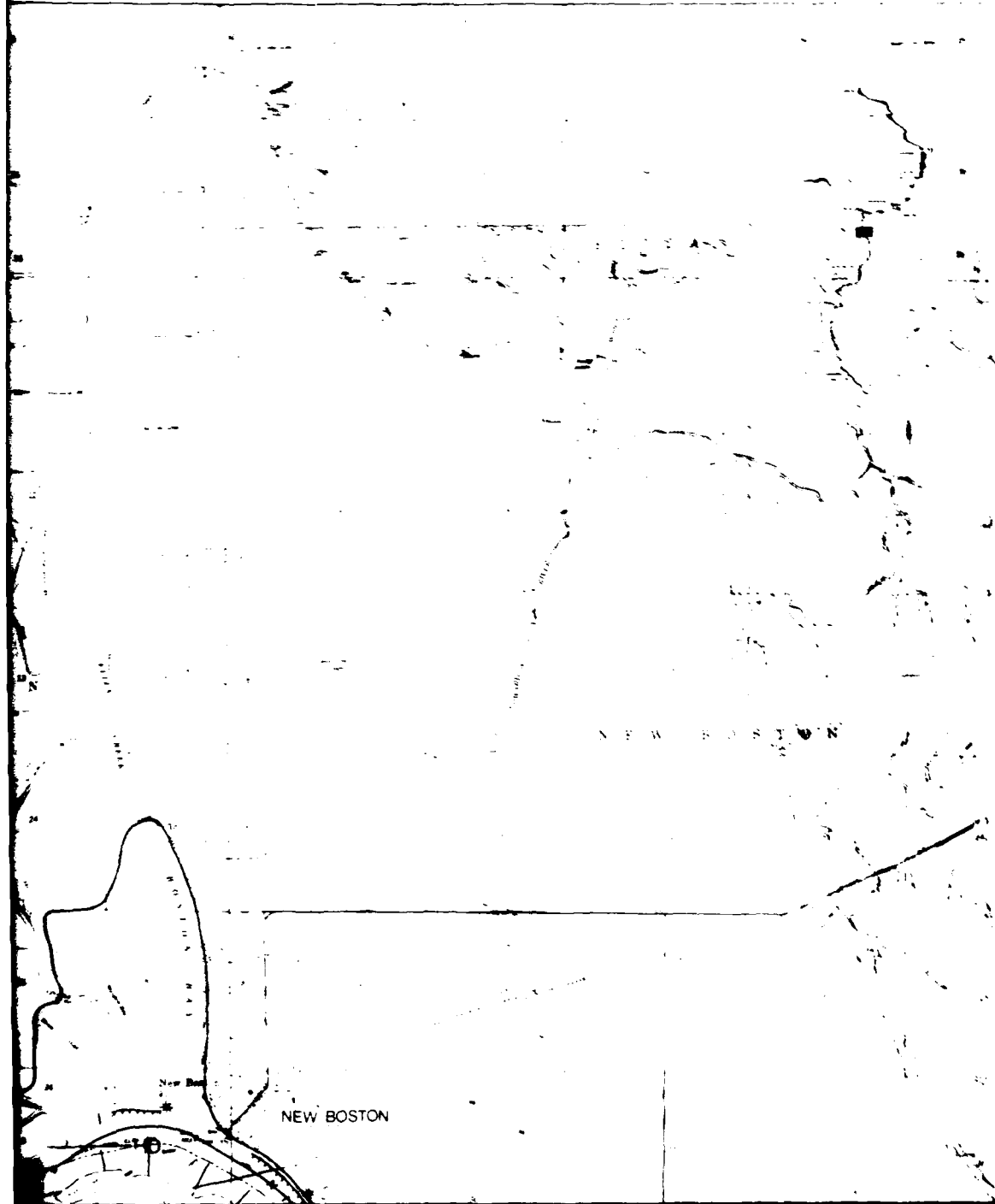
**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(PPOOL 17 — MILE 443 TO LOCK AND DAM 17)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 1/4  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS



UPPER  
MISSISSIPPI  
RIVER

17

module 3

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT III)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

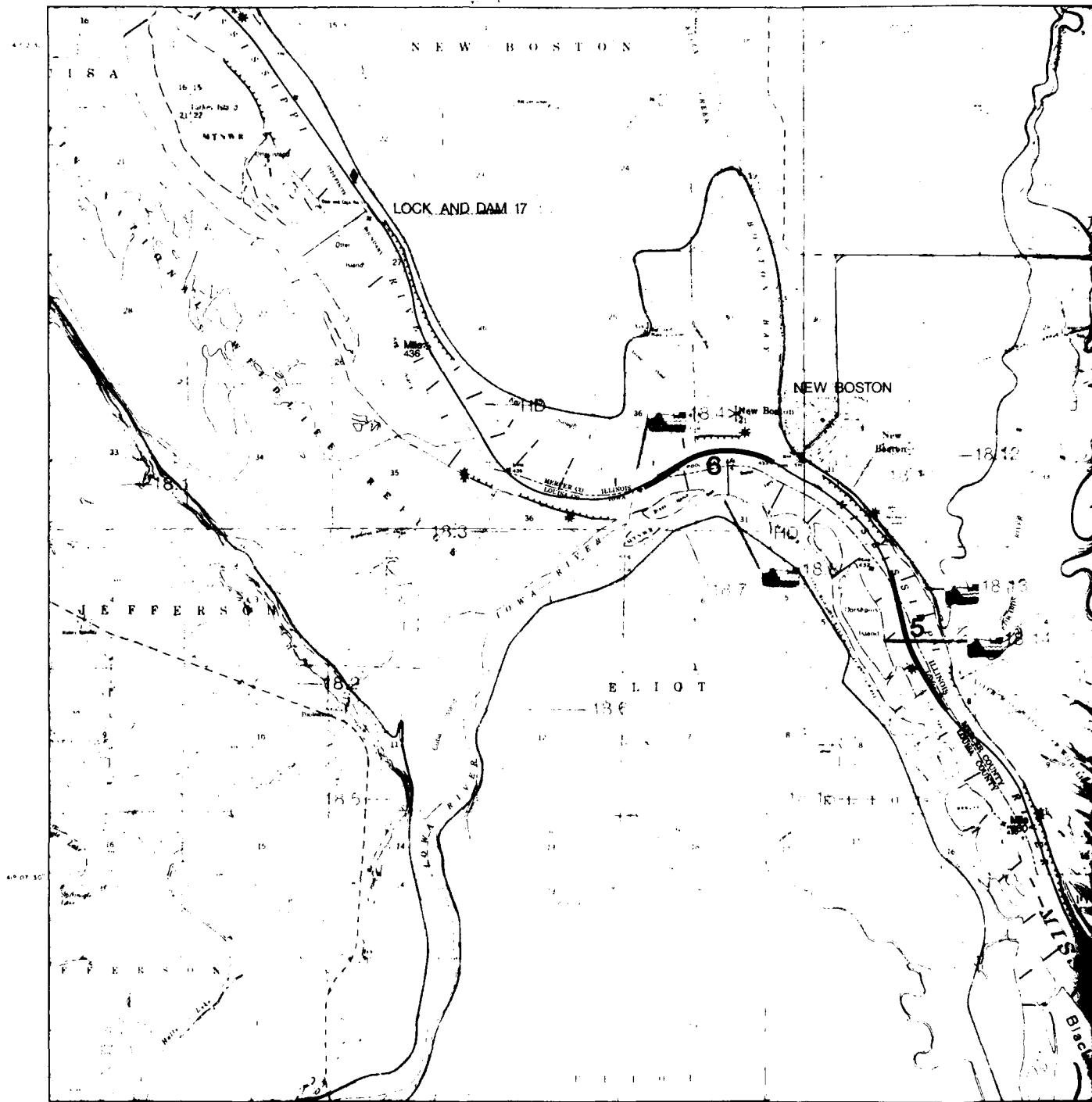


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

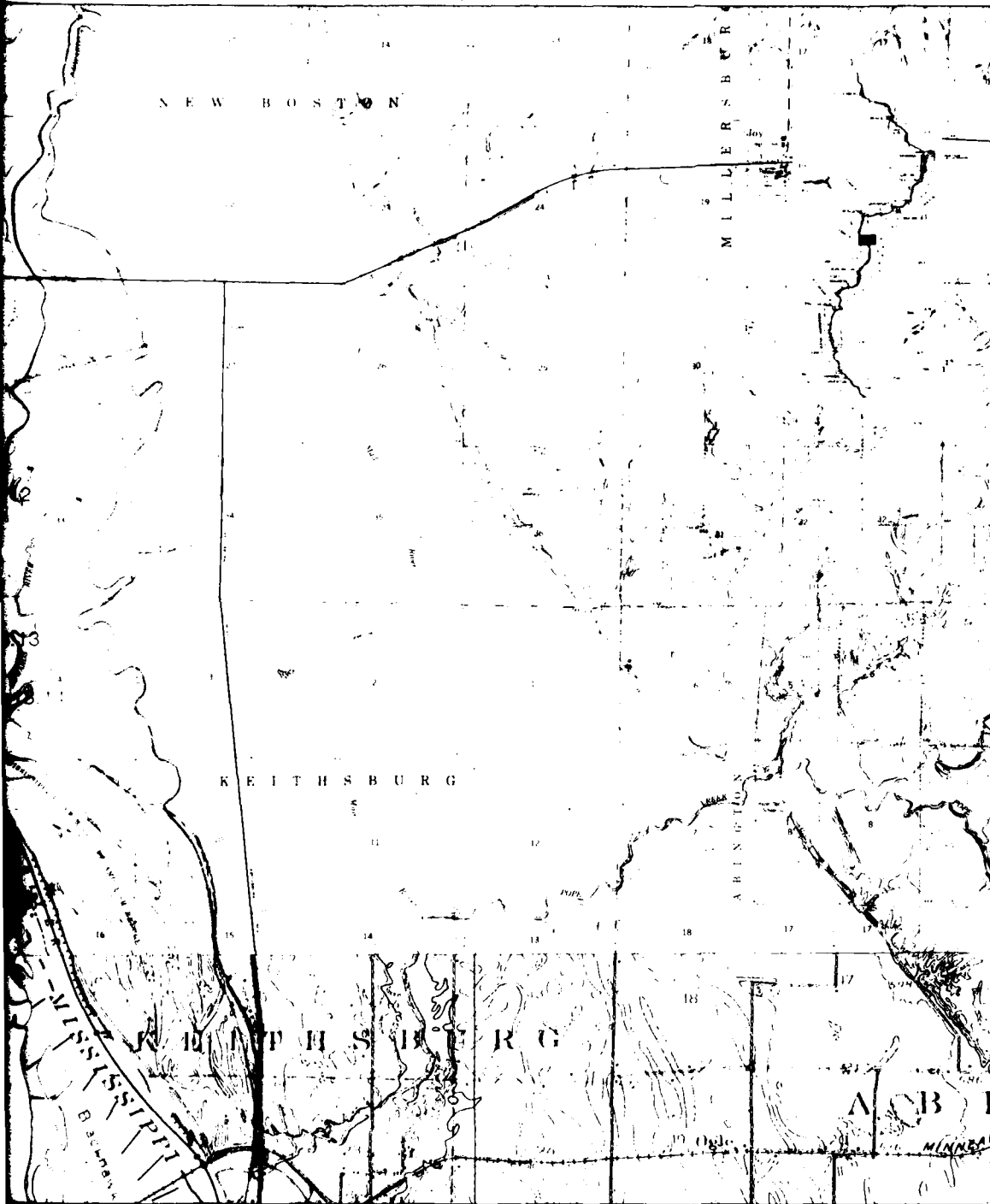
**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 18 — LOCK AND DAM 17 TO MILE 429)**



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#5	EDWARDS RIVER	431.0-432.0	165,000 cu. yd.
	#6	NEW BOSTON UPPER	433.0-434.0	250,000 cu. yd.

0 14  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 18 — MODULE 1)



UPPER  
MISSISSIPPI  
RIVER

18

module 1

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

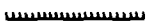
UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1900, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT III)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



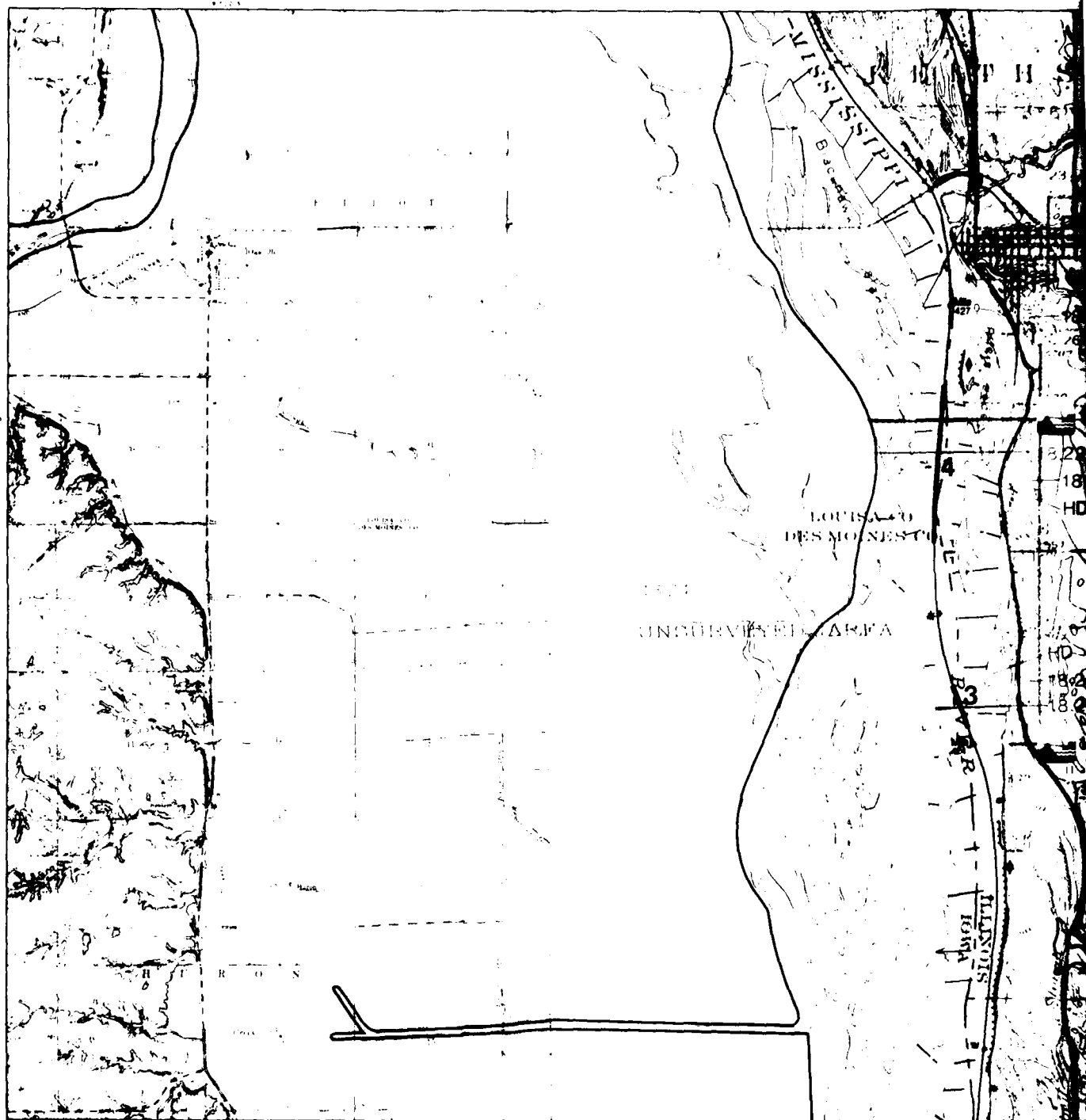
MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS



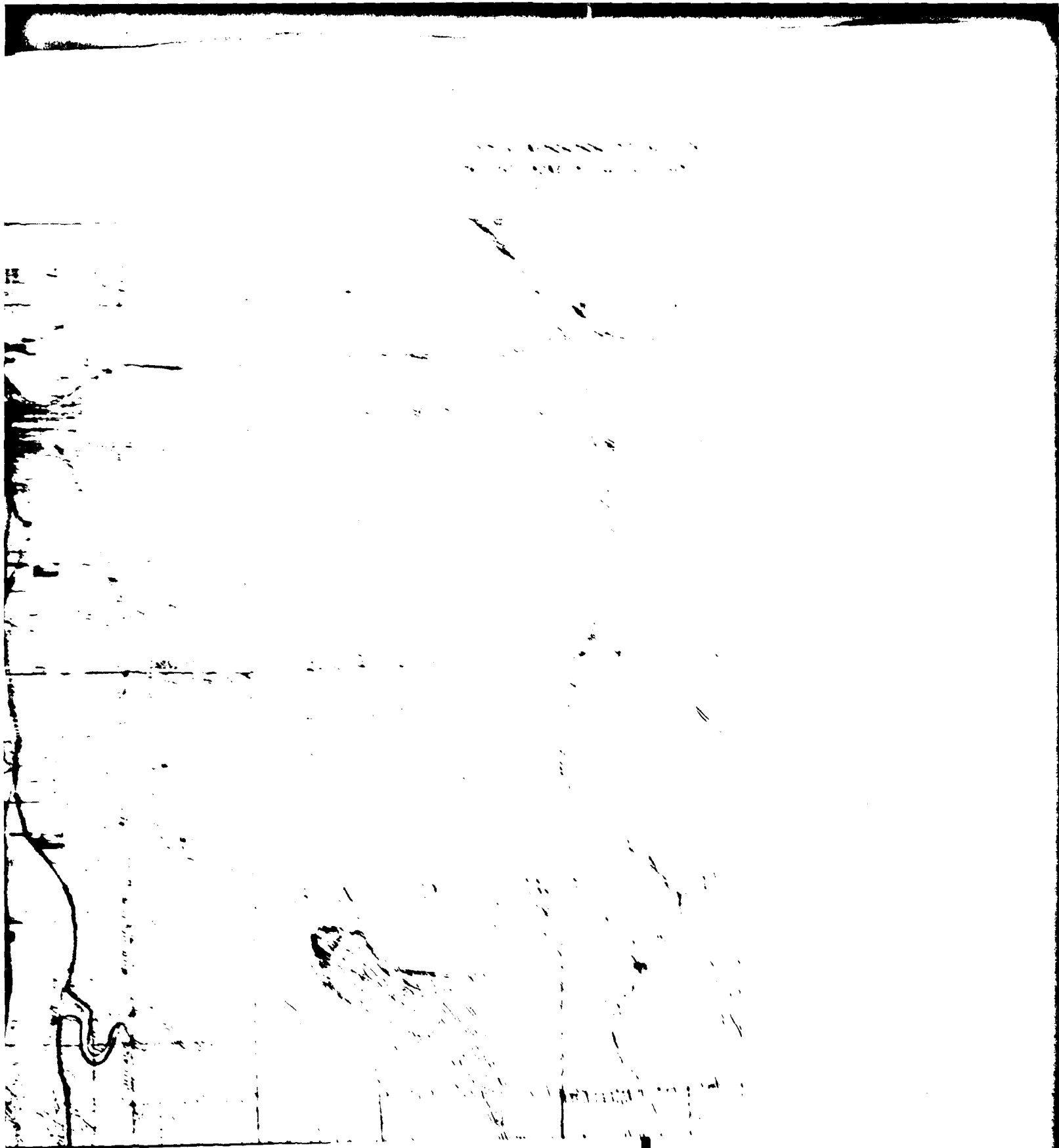
**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(Pool 18 — Mile 429 to Mile 422)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#1	ROBIN ISLAND	429.2-429.5	20,000 cu yd
	#2	RETHORNS POINT	429.5-429.8	40,000 cu yd

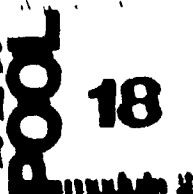
0 1/4 1/2  
MILES

2



UPPER  
MISSISSIPPI  
RIVER

18



# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

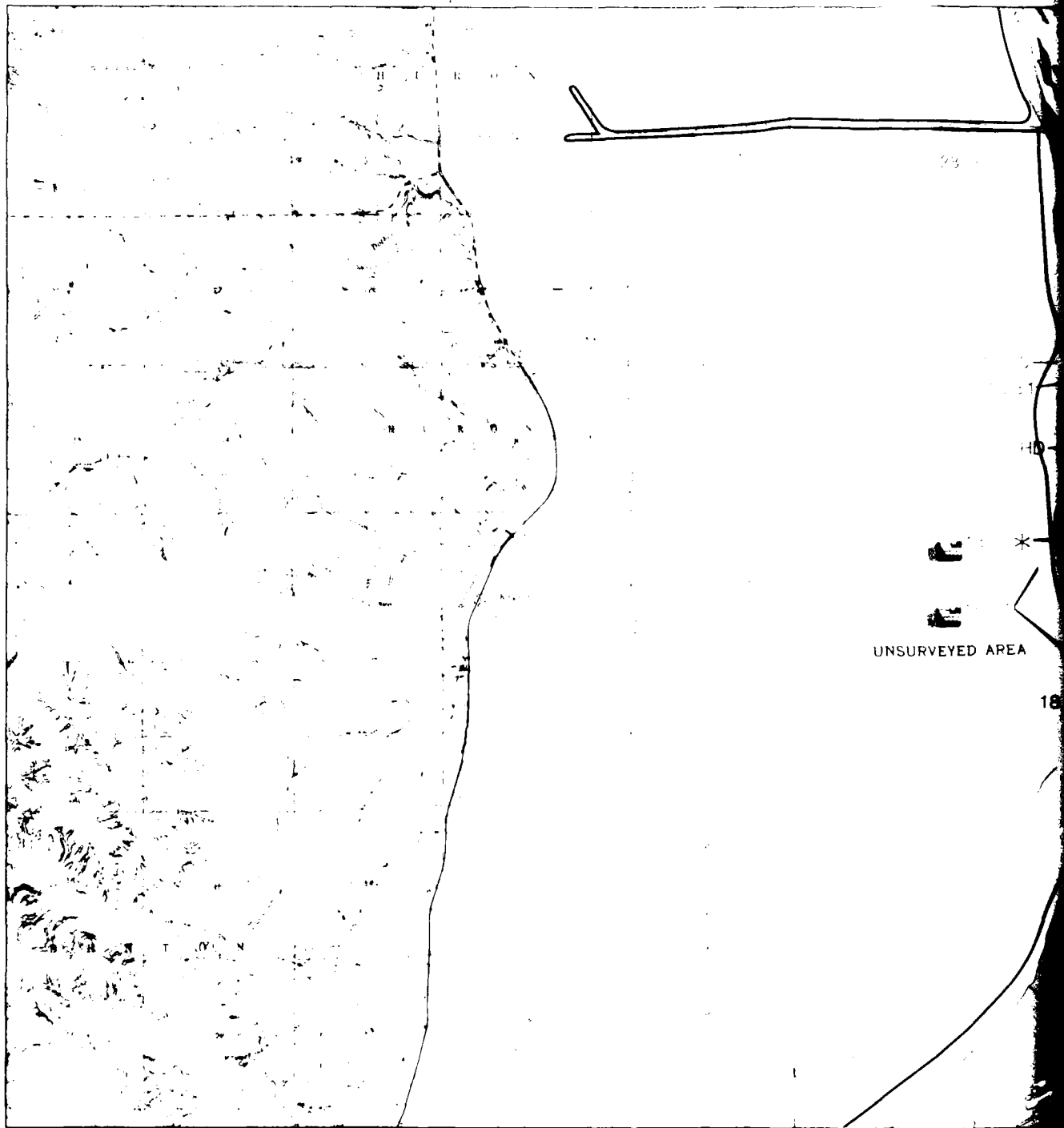


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

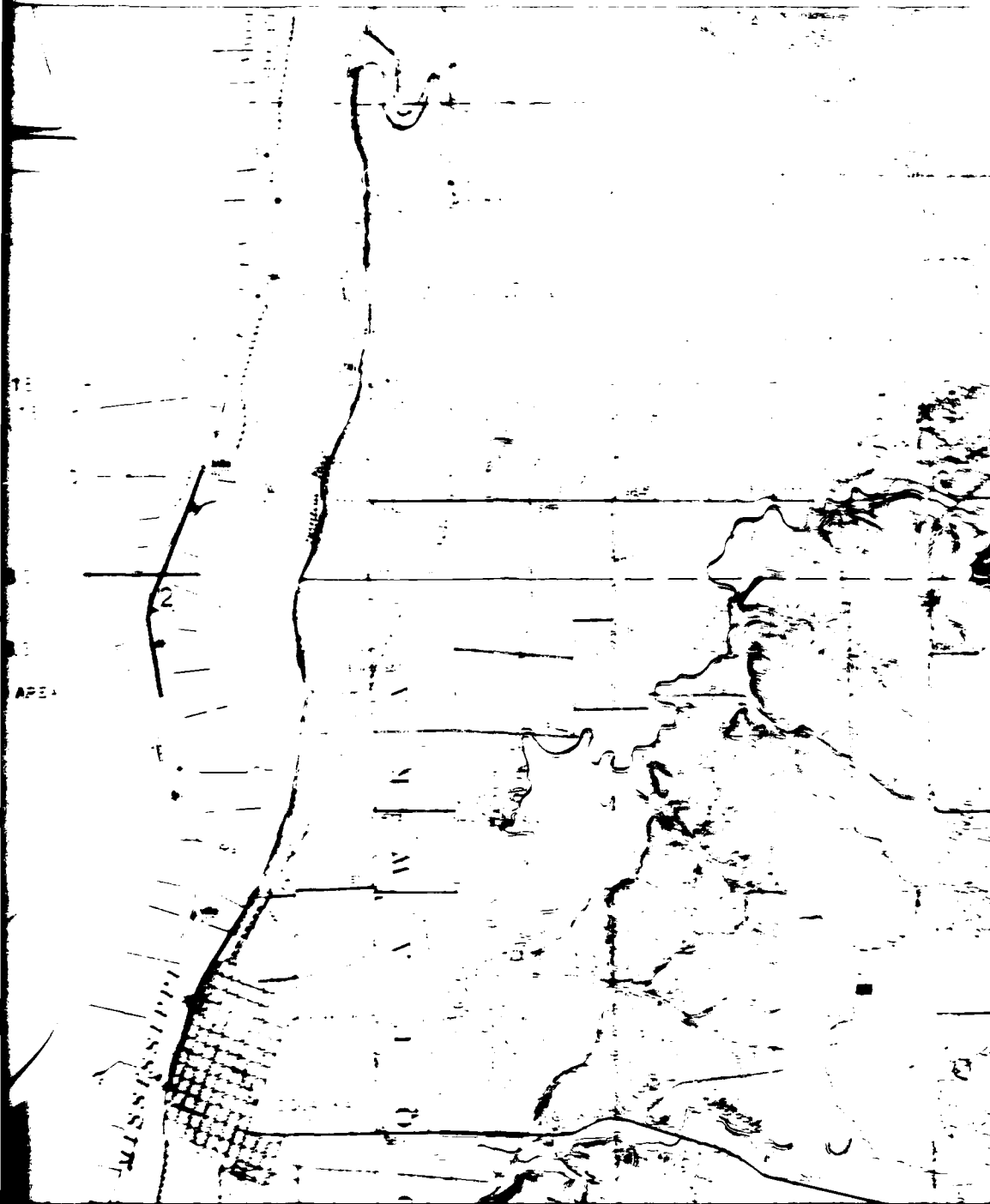
**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
 (POOL 18 — MILE 422 TO MILE 416)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	4	NEW LANE	NEW LANE	NEW LANE

0 1/4  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS



UPPER  
MISSISSIPPI  
RIVER

18

module 3

# LEGEND

5  


DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PHONE AREAS MAP DEVELOPED BY GREAT II)

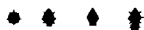


LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

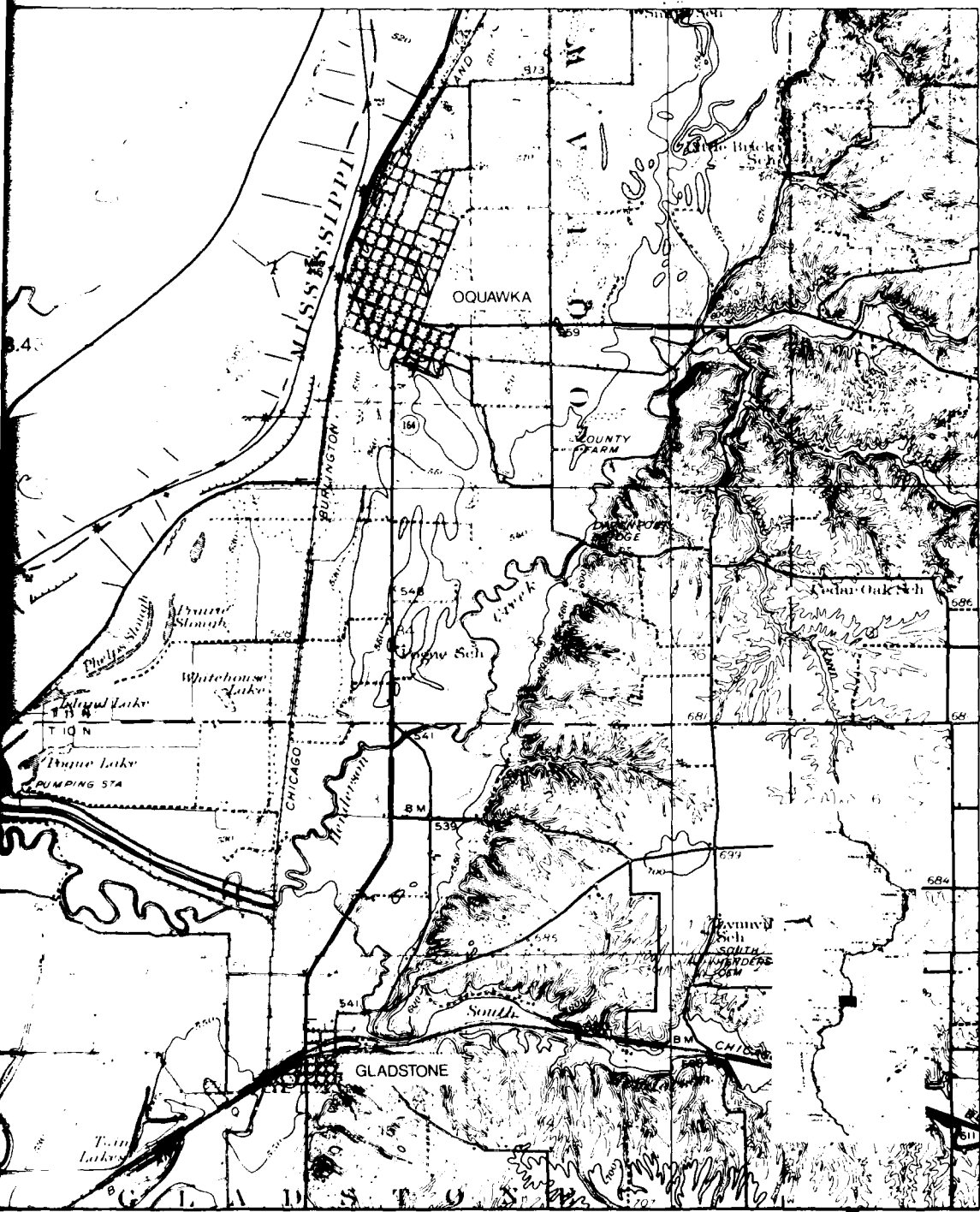
**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 18 - MILE 416 TO LOCK AND DAM 18)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 14  
MILES

# UPPER MISSISSIPPI RIVER ENVIRONMENTAL ATLAS (POOL 18 - MODULE 4)



UPPER  
MISSISSIPPI  
RIVER

**18**

module 4



# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938 BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT III)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

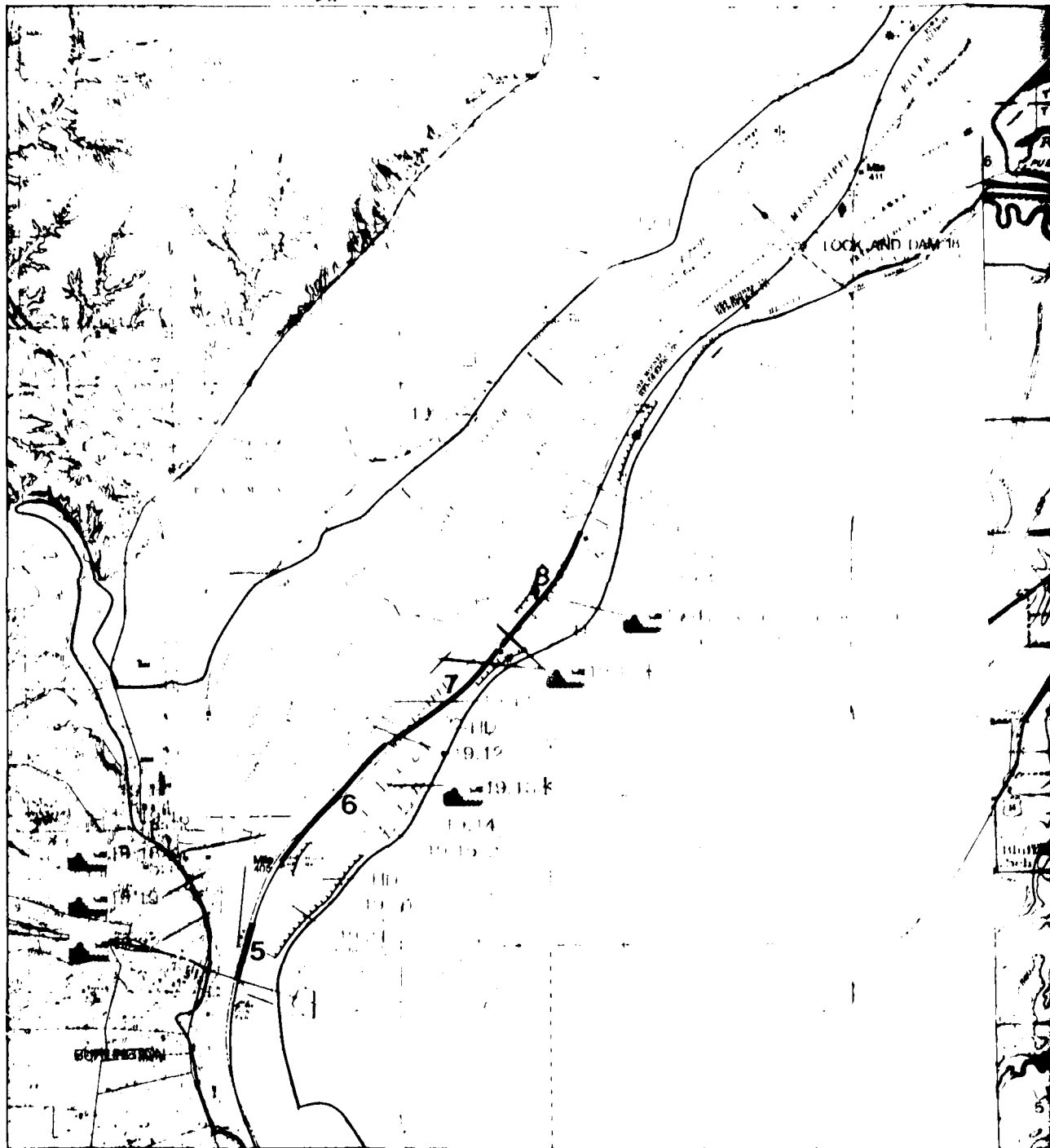


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

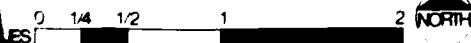
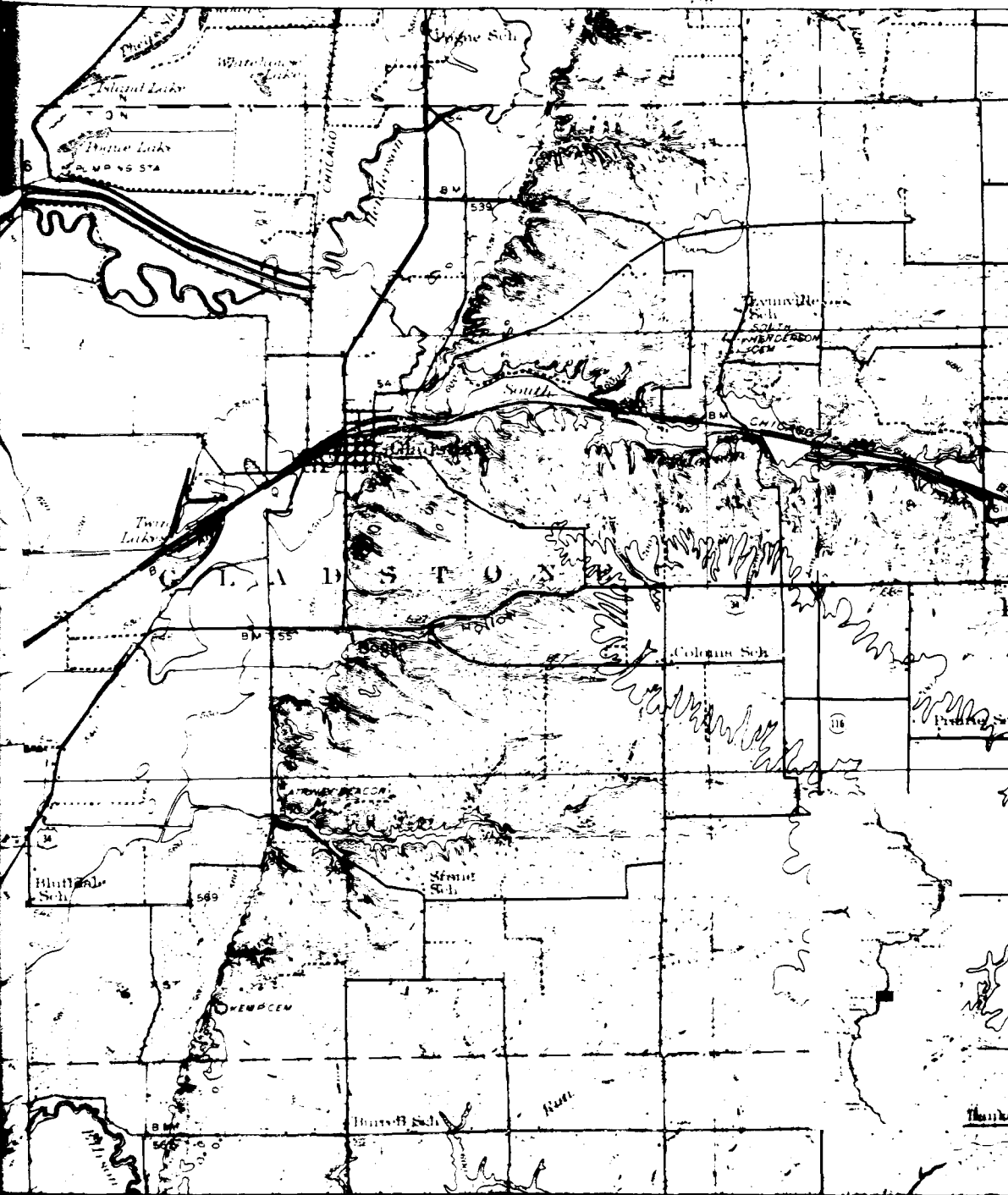
**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 19 — LOCK AND DAM 18 TO MILE 404)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED DREDGE VOLUME
	1	19.12-19.13	19.12	100,000
	2	19.13-19.14	19.13	100,000
	3	19.14-19.15	19.14	100,000
	4	19.15-19.16	19.15	100,000

0  
MILES

# UPPER MISSISSIPPI RIVER ENVIRONMENTAL ATLAS (POOL 19 - MODULE 1)



UPPER  
MISSISSIPPI  
RIVER

**19**

module 1

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

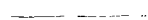
RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

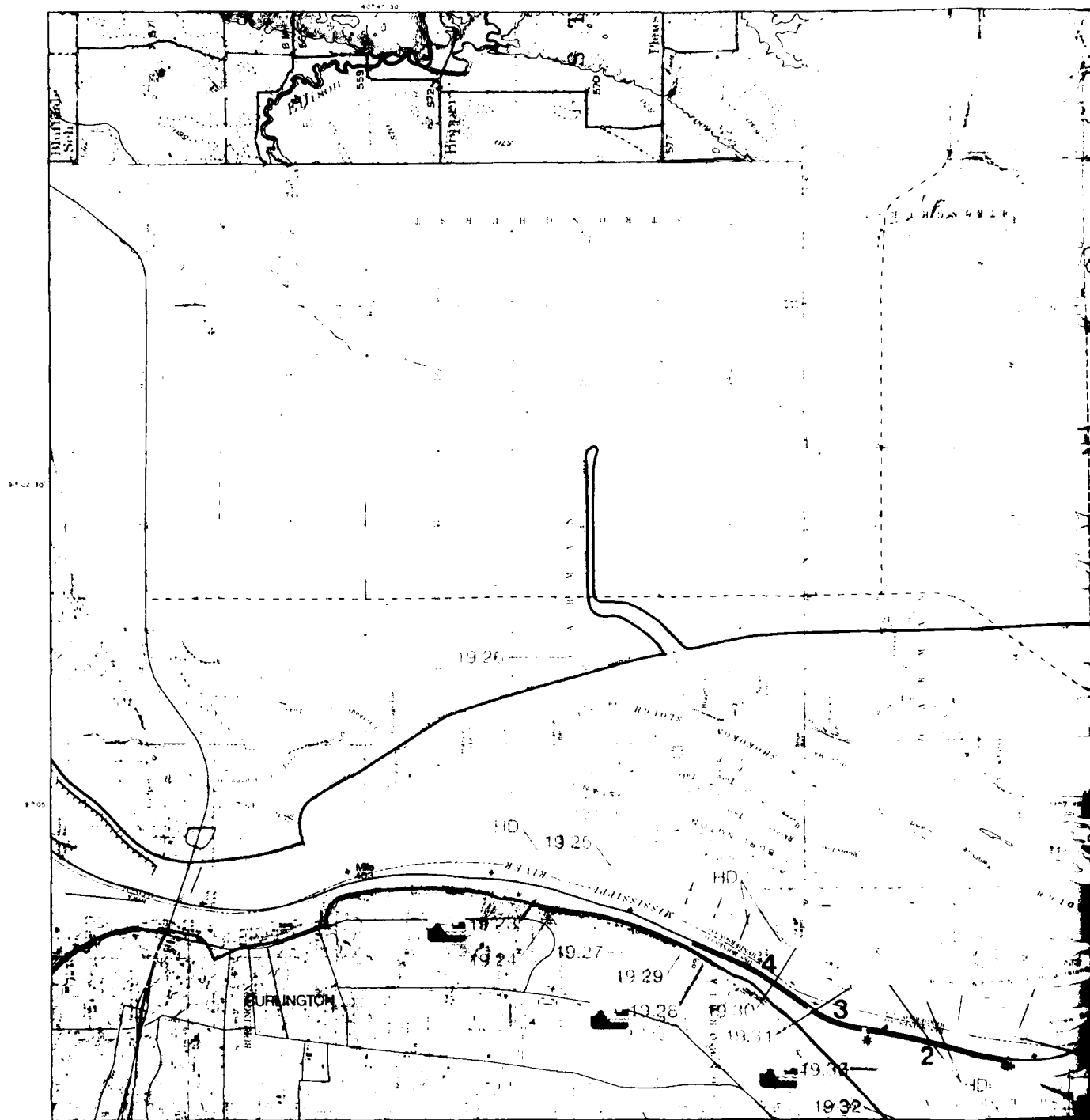


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 19 — MILE 404 TO MILE 396)



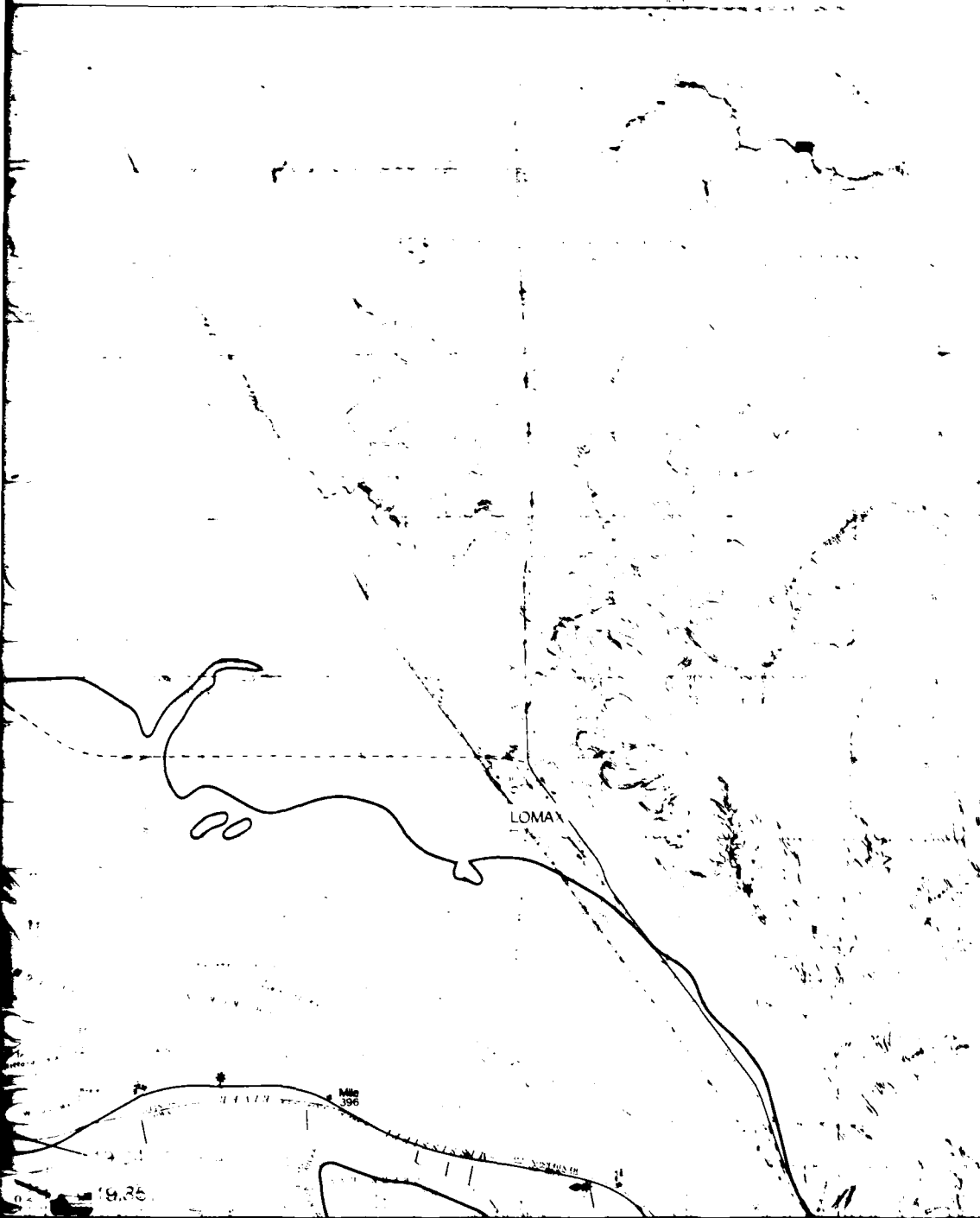
**DREDGE CUT DESCRIPTION**

DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
#2	KEMP'S LANDING	396.2-396.2	10,000 cu yd.
#3	WATERS LANDING	396.2-396.0	10,000 cu yd.
#4	BURLINGTON BLUFF	396.0-401.0	125,000 cu yd.

0 14  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
POOL 19 - MODULE 2



UPPER  
MISSISSIPPI  
RIVER

19  
module 2

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



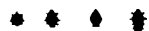
LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

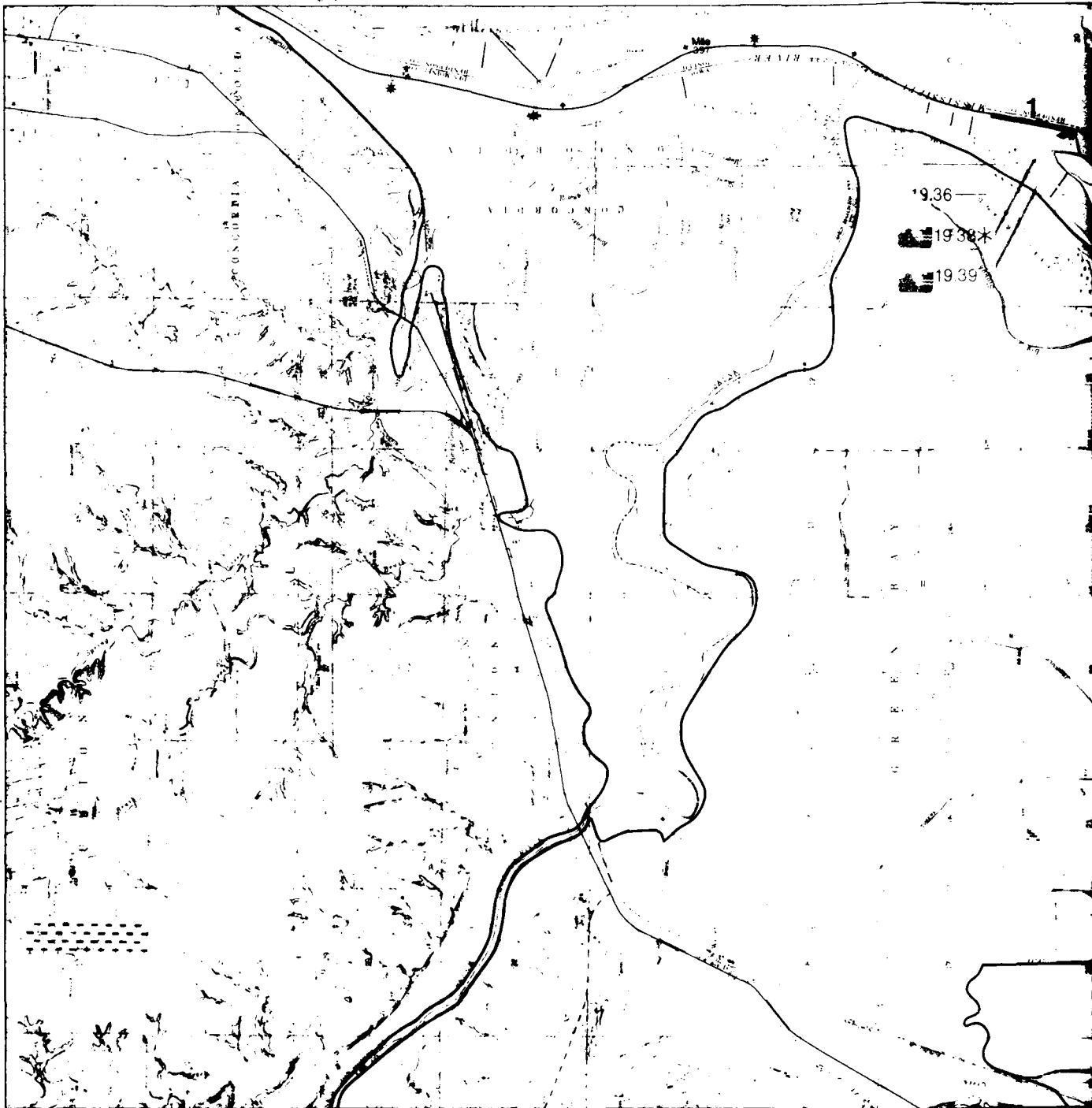


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(POL 19 — MILE 396 TO MILE 387)



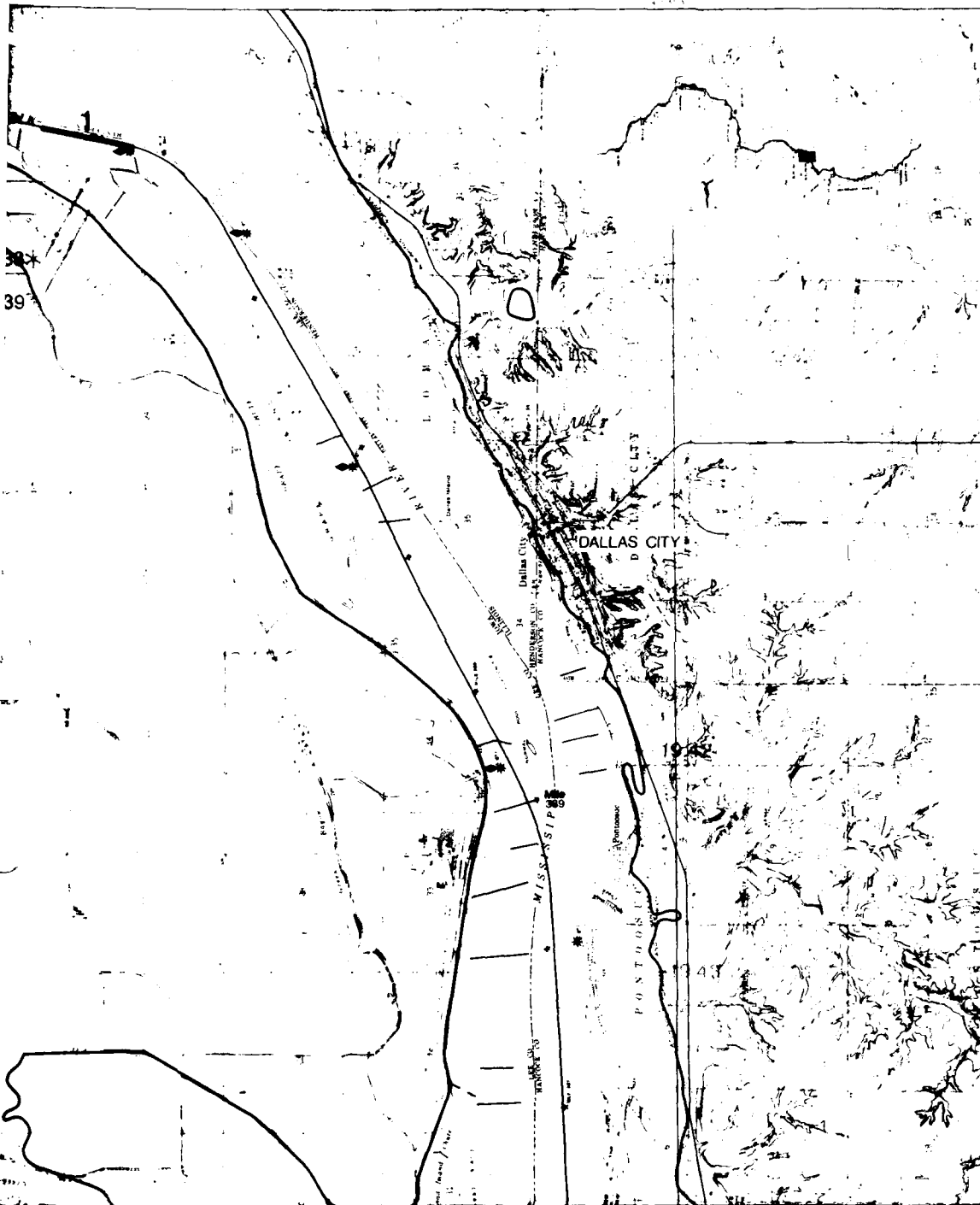
**DREDGE CUT DESCRIPTION**

DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
#1	JOKKIN	394.2-394.8	200,000 cu.yd.

0 1/4 1/2  
MILES



UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 19 — MODULE 3)



UPPER  
MISSISSIPPI  
RIVER

**19**

module 3

# LEGEND

5  
DREDGE CUT LOCATION

DREDGE CUT NUMBER  
DREDGE CUT LOCATION

10  
PRIMARY DISPOSAL SITE

PRIMARY DISPOSAL SITE

OK  
PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18 25  
ALTERNATIVE DISPOSAL SITE

ALTERNATIVE DISPOSAL SITE

HD  
UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587  
RIVER MILE LOCATION

RIVER MILE LOCATION

100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)

100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)

LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

MID-CHANNEL SAILING LINE

MID-CHANNEL SAILING LINE

NAVIGATION CHANNEL MARKERS

NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 19 — MILE 387 TO MILE 378)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 1/4 1/2  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
IPCC, 19 - MODULE 4



UPPER  
MISSISSIPPI  
RIVER

19

module 4

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 19 — MILE 378 TO LOCK AND DAM 19)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME

0 1/4 1/2  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

1958 - 1960



0 1/4 1/2 1 2



UPPER  
MISSISSIPPI  
RIVER

19

module 5

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM



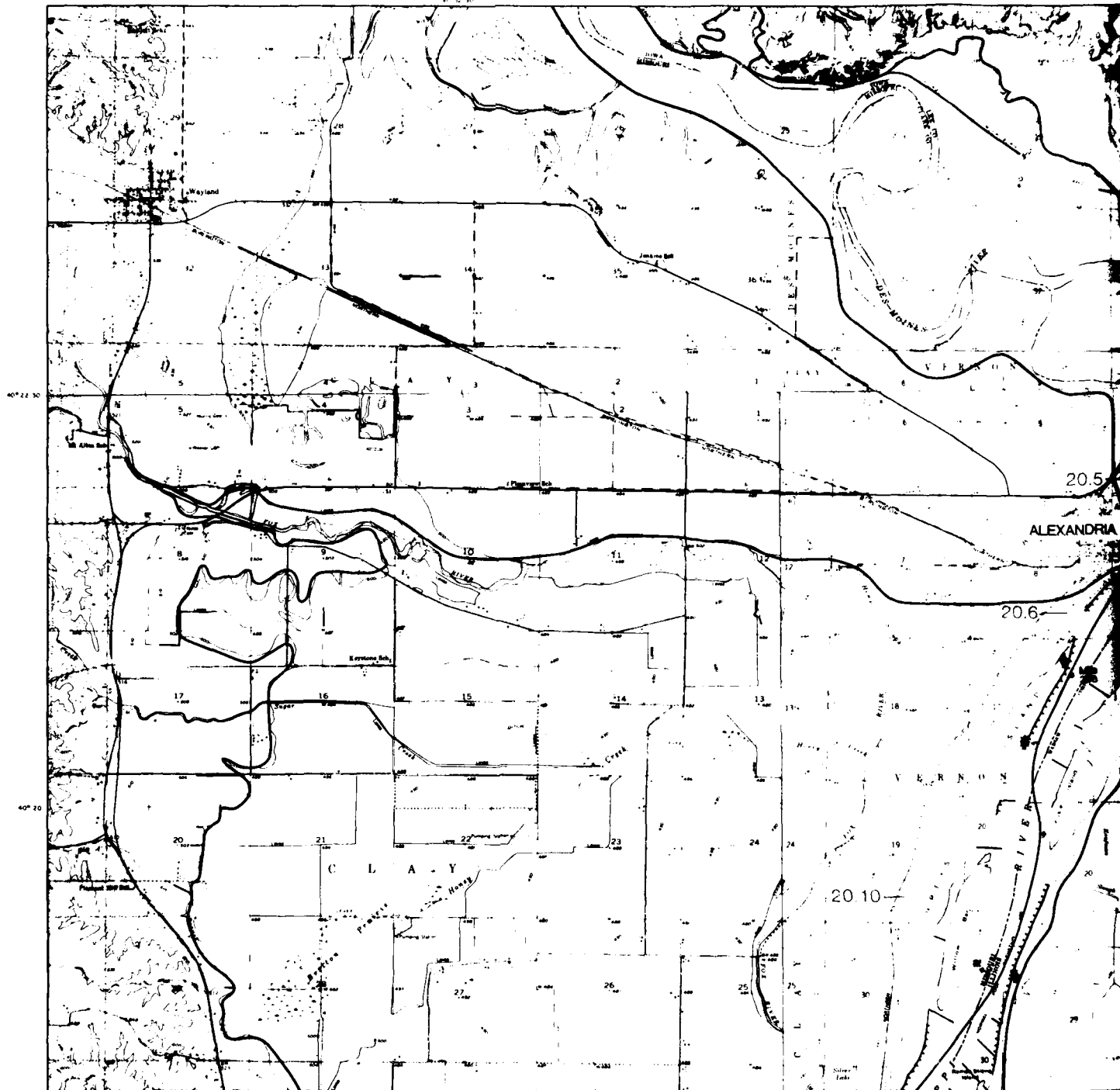
MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS



**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 20 — LOCK AND DAM 19 TO MILE 356)**



**DREDGE CUT  
DESCRIPTION**

DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
#6	DES MOINES RIVER	361.0-361.6	125,000 cu. yd.
#7	KOKUK STEEL	361.9-362.6	37,500 cu. yd.

0 1/4 1/2  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
PART 20 - MODULE 1



UPPER  
MISSISSIPPI  
RIVER

20

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

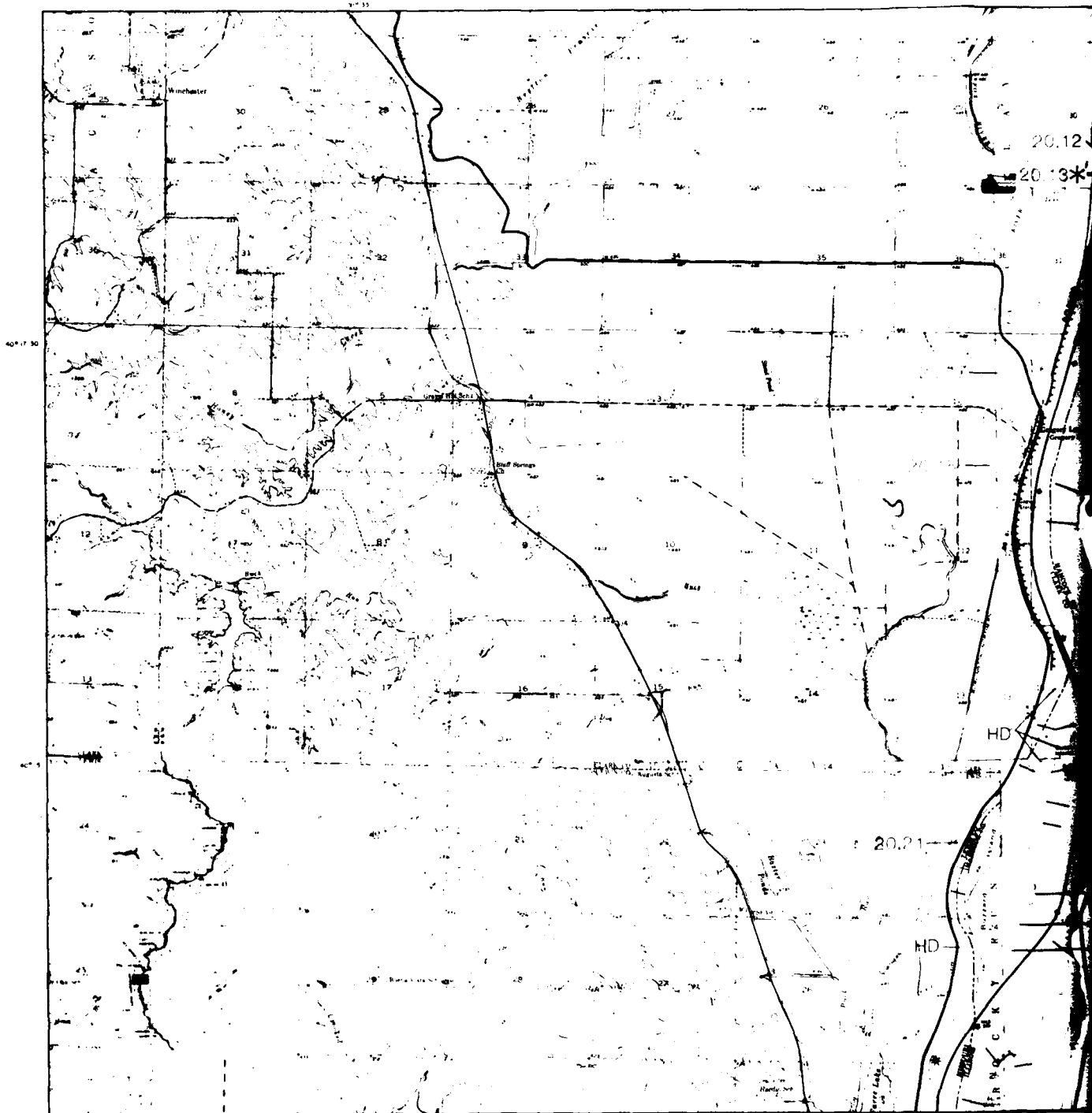


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

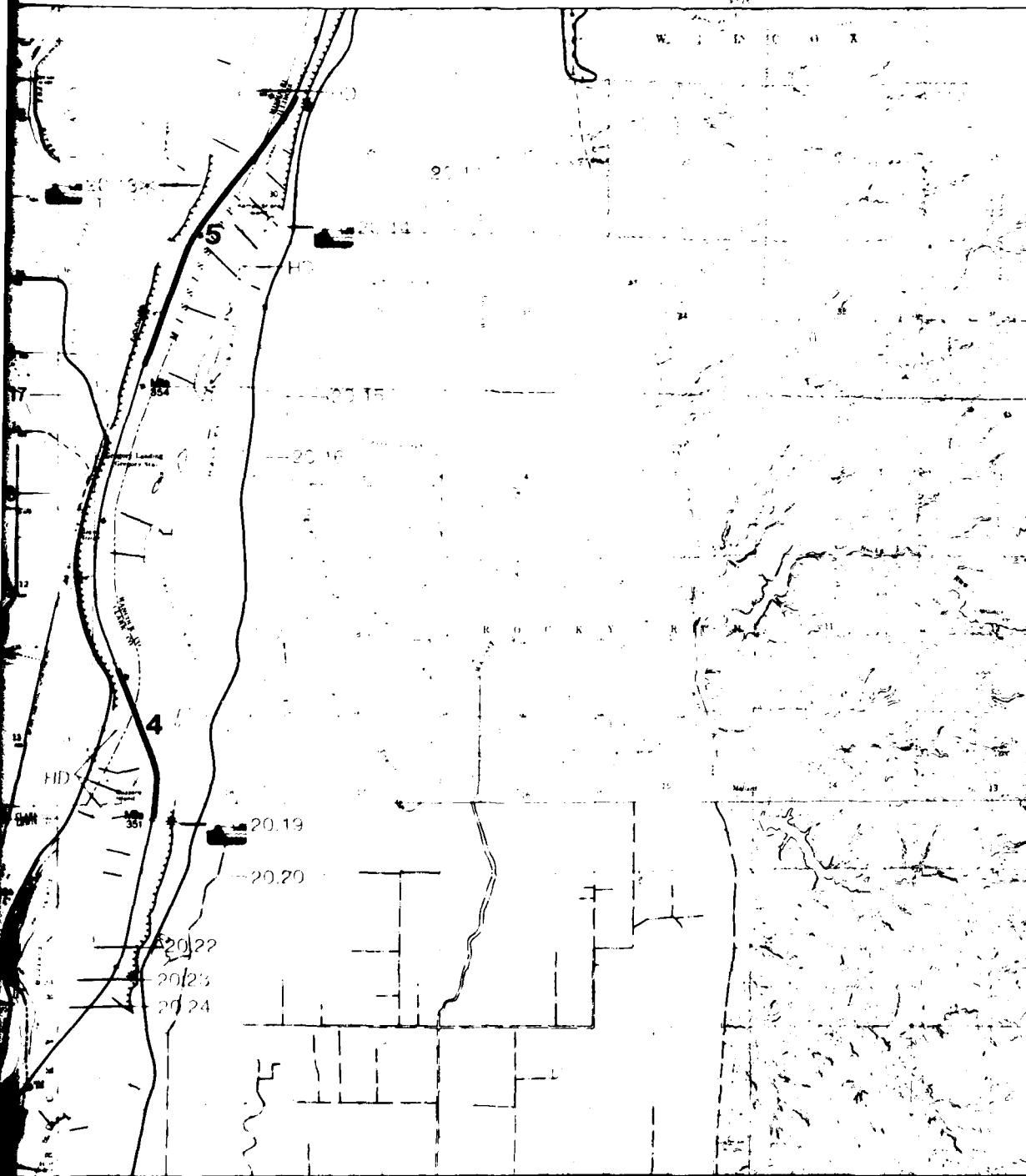
**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 20 — MILE 356 TO MILE 349)**



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#4	GREGORY LOMER	351.0-352.0	375,000 cu.yd.
	#5	FOX ISLAND	354.0-356.0	907,500 cu.yd.

0 14  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 20 — MODULE 2)



UPPER  
MISSISSIPPI  
RIVER

**20**

module 2

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

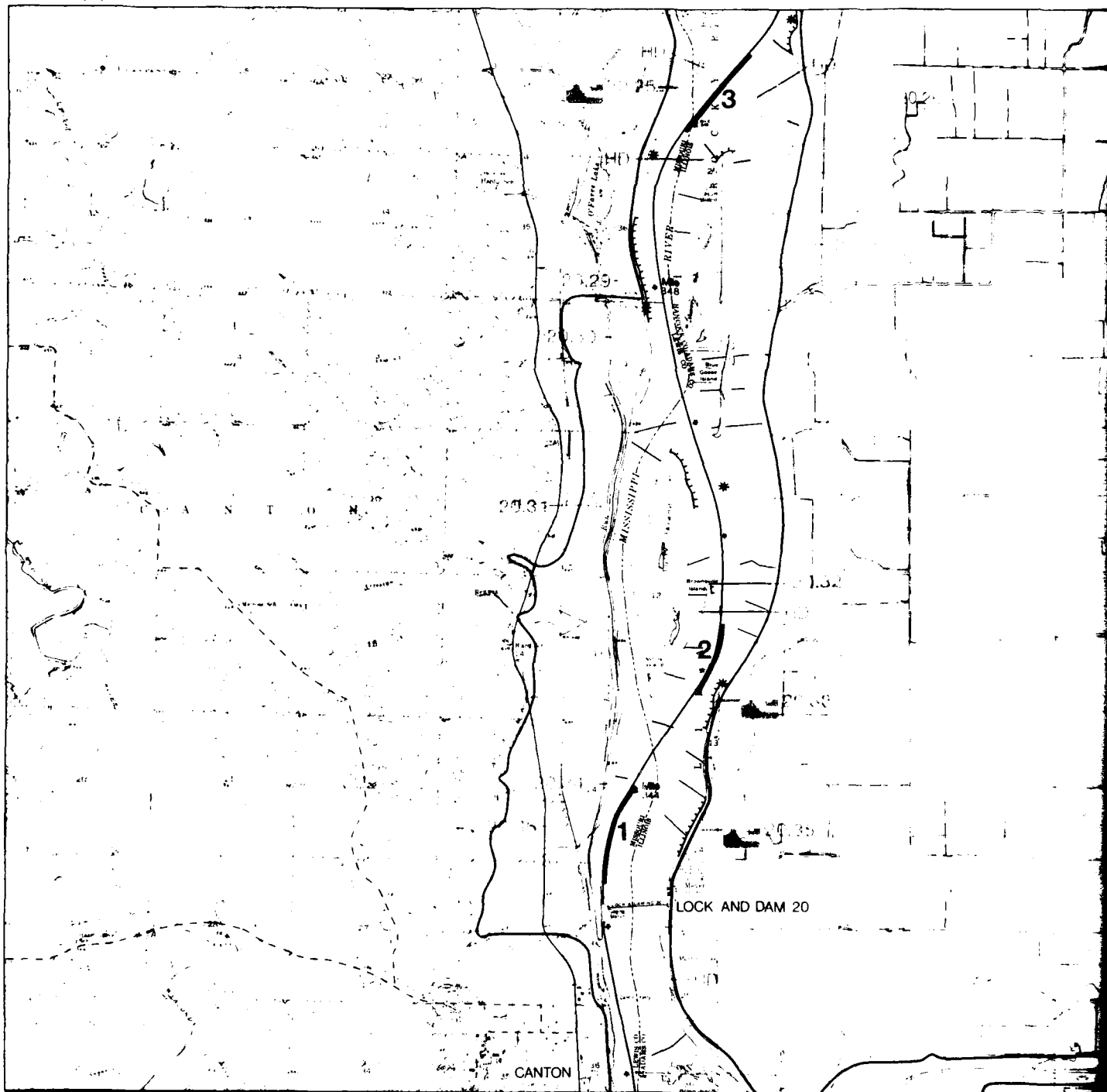


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(PHASE 20 - MILE 349 TO LOCK AND DAM 20)

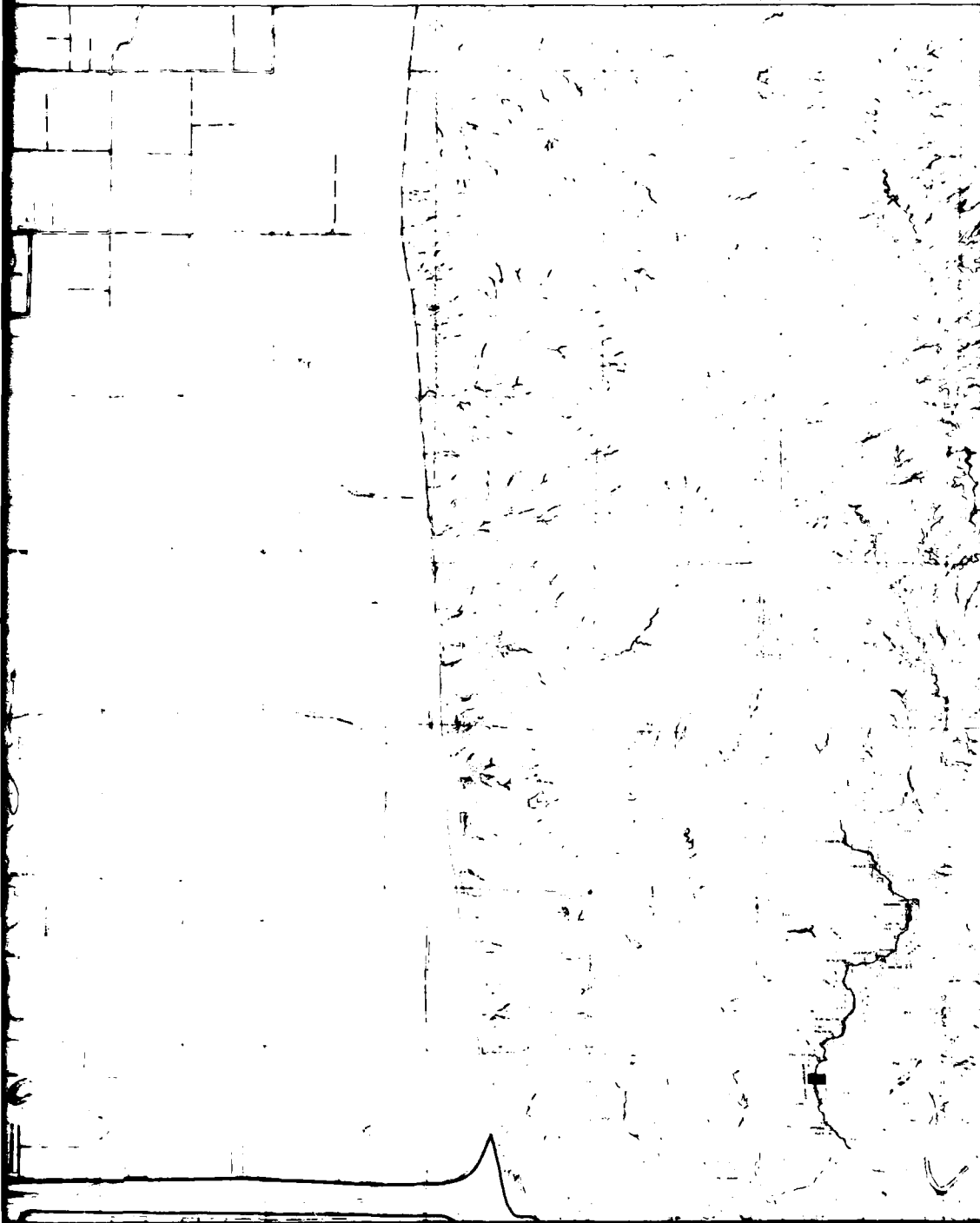


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#1	LOT #1 - INTER-STATE	349.3 - 349.4	100,000 cu yd
	#2	NEAR LOT #1	349.5 - 349.6	40,000 cu yd
	#3	BUZZARD TRAIL	349.7 - 349.8	60,000 cu yd

0 1/4 1/2  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 20 — MODULE 3)



UPPER  
MISSISSIPPI  
RIVER

20

module 3





# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

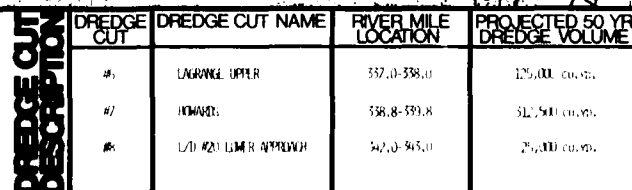


MID-CHANNEL SAILING LINE

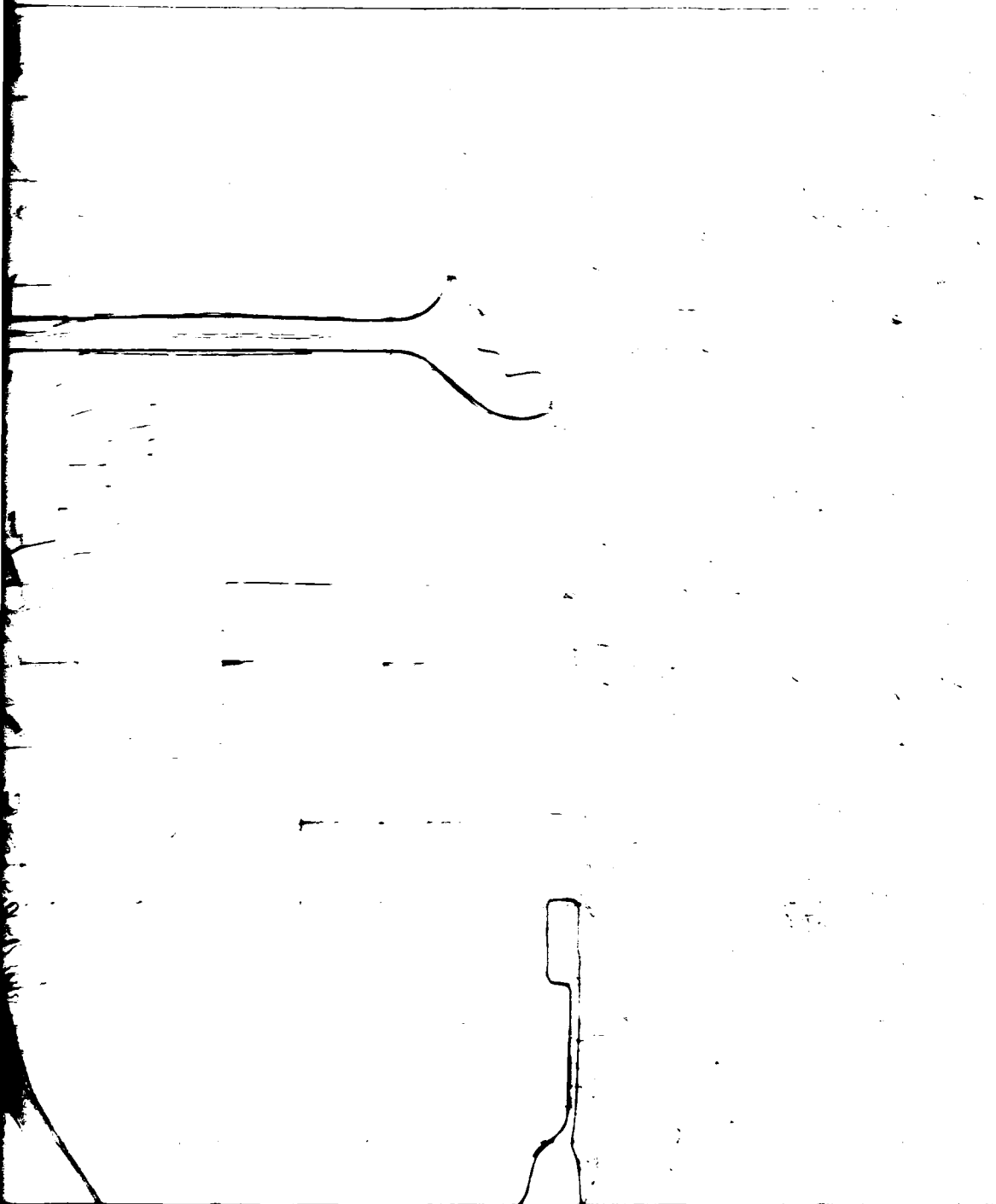


NAVIGATION CHANNEL MARKERS

(POOL 21 — LOCK AND DAM 20 TO MILE 337)

MILES  0 100

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
1977-1978



UPPER  
MISSISSIPPI  
RIVER

21

module 1

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

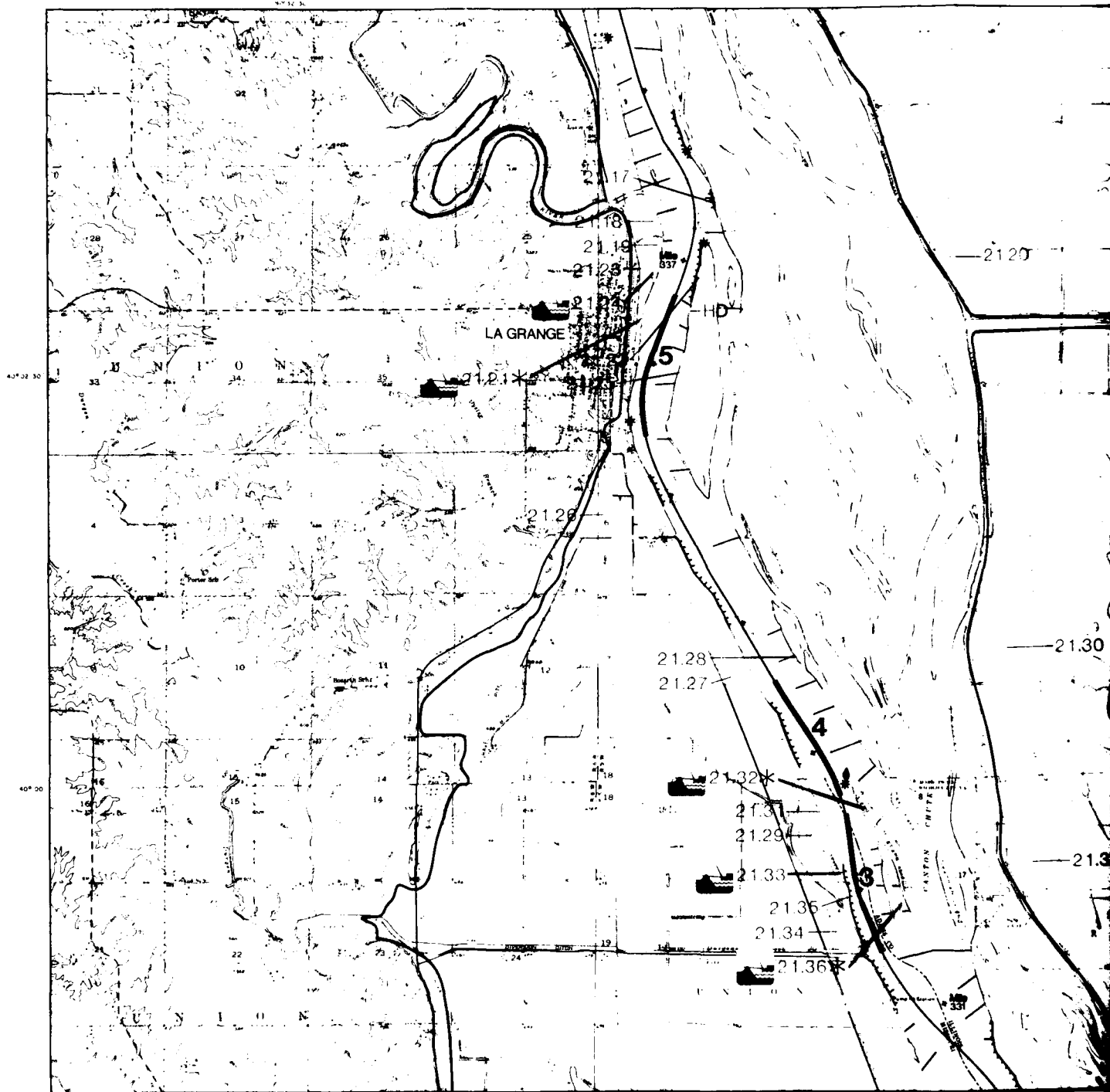


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 21 — MILE 337 TO MILE 331)**

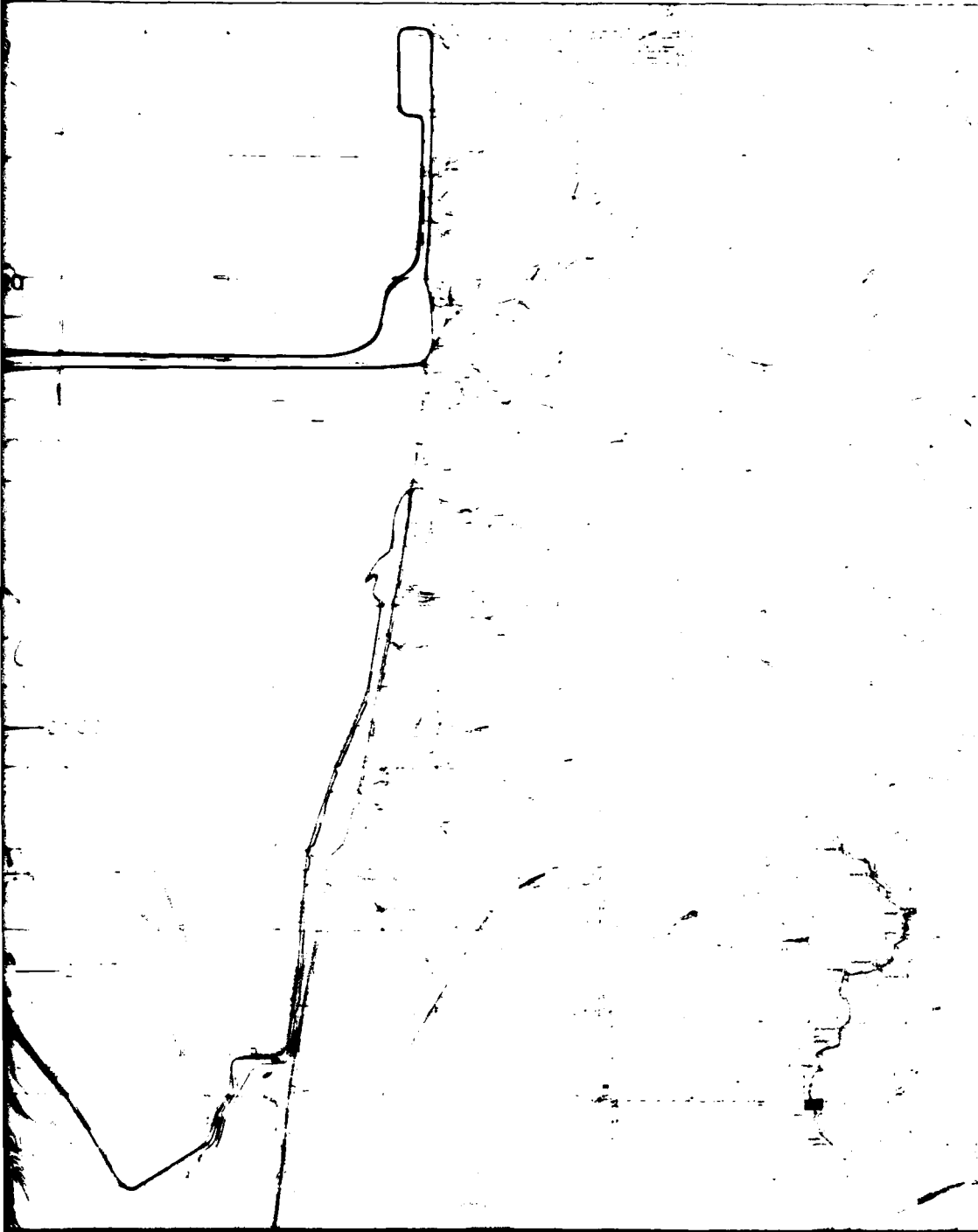


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#3	HOBACK ISLAND	331.5-332.6	218,740 cu. yd.
	#4	WILLOW ISLAND	332.6-333.6	75,000 cu. yd.
	#5	LA GRANGE	333.5-336.5	312,500 cu. yd.

0 1/4 1/2  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 21 - MODULE 2)



UPPER  
MISSISSIPPI  
RIVER

21

14.2



NORTH

1/2

# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

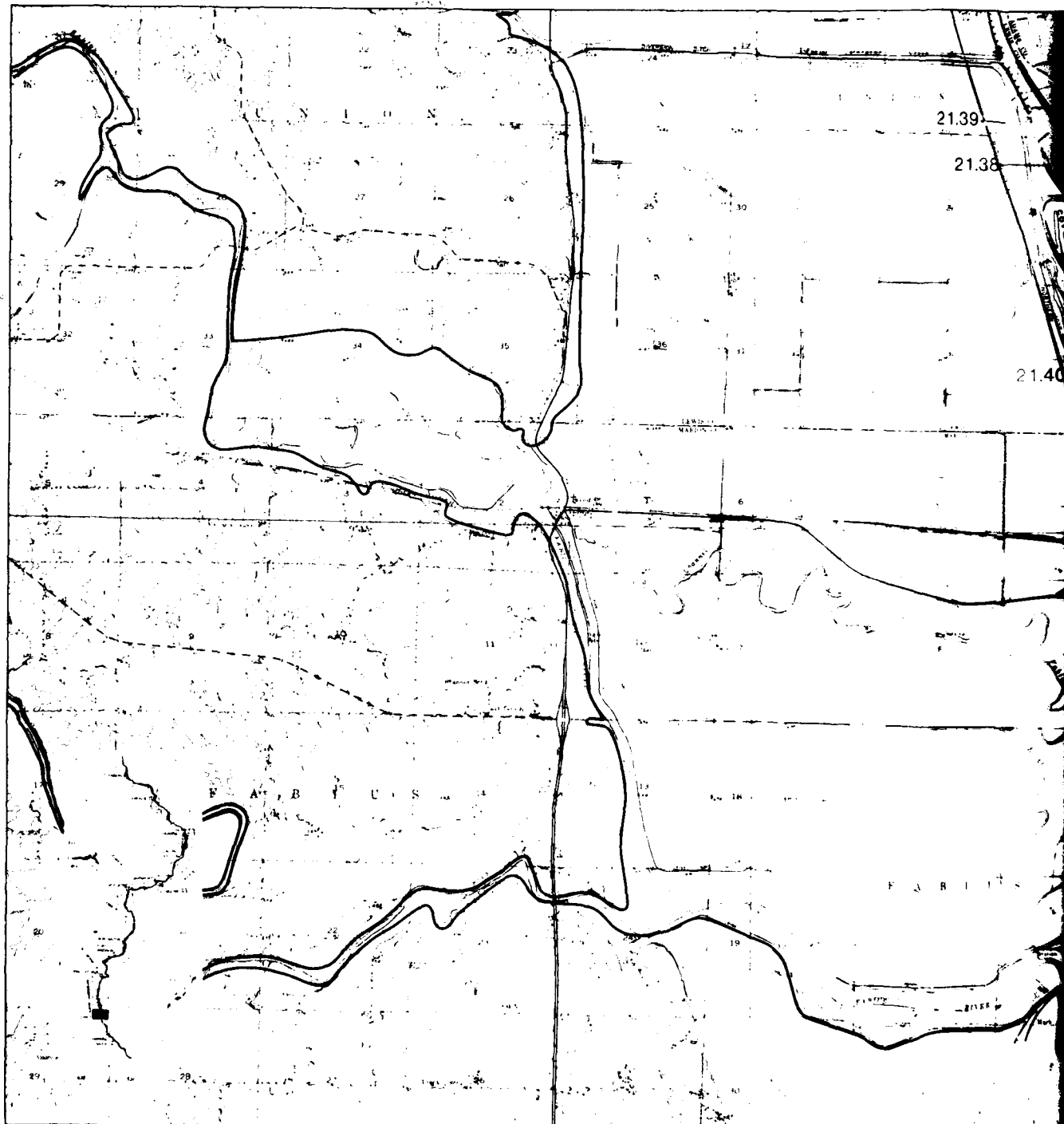


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)  
(POOL 21 — MILE 331 TO LOCK AND DAM 21)**



**DREDGE CUT  
DESCRIPTION**

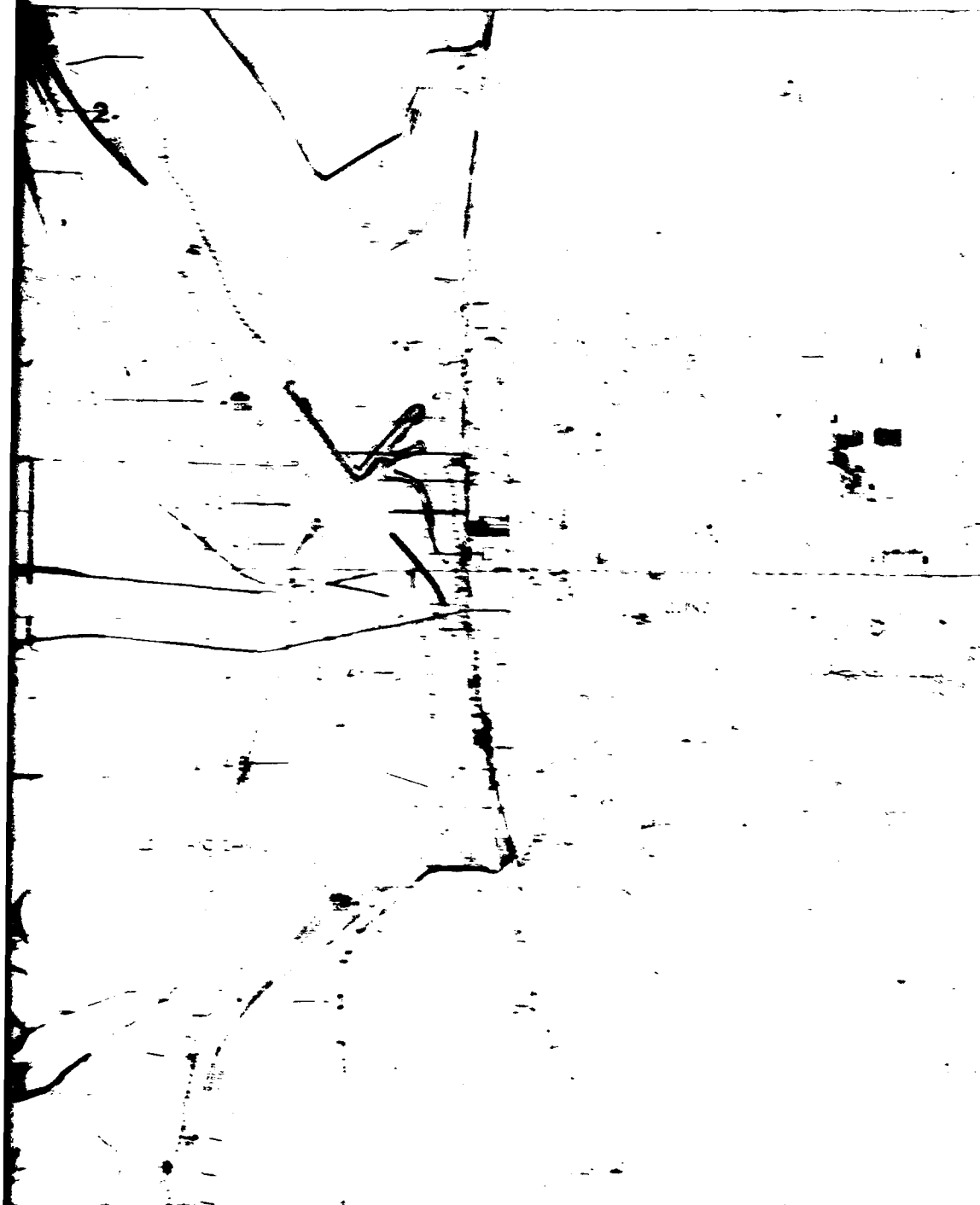
DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
#1	SAWYER BRIDGE	32.1-32.6	15,314 cu yds.
#2	LINE TREE CUTOFF	33.0-33.5	14,250 cu yds.

0 1/4  
MILES

2



UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
PLATE 1 - MINNESOTA



UPPER  
MISSISSIPPI  
RIVER

21

Module 3

# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)

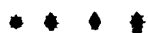


LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

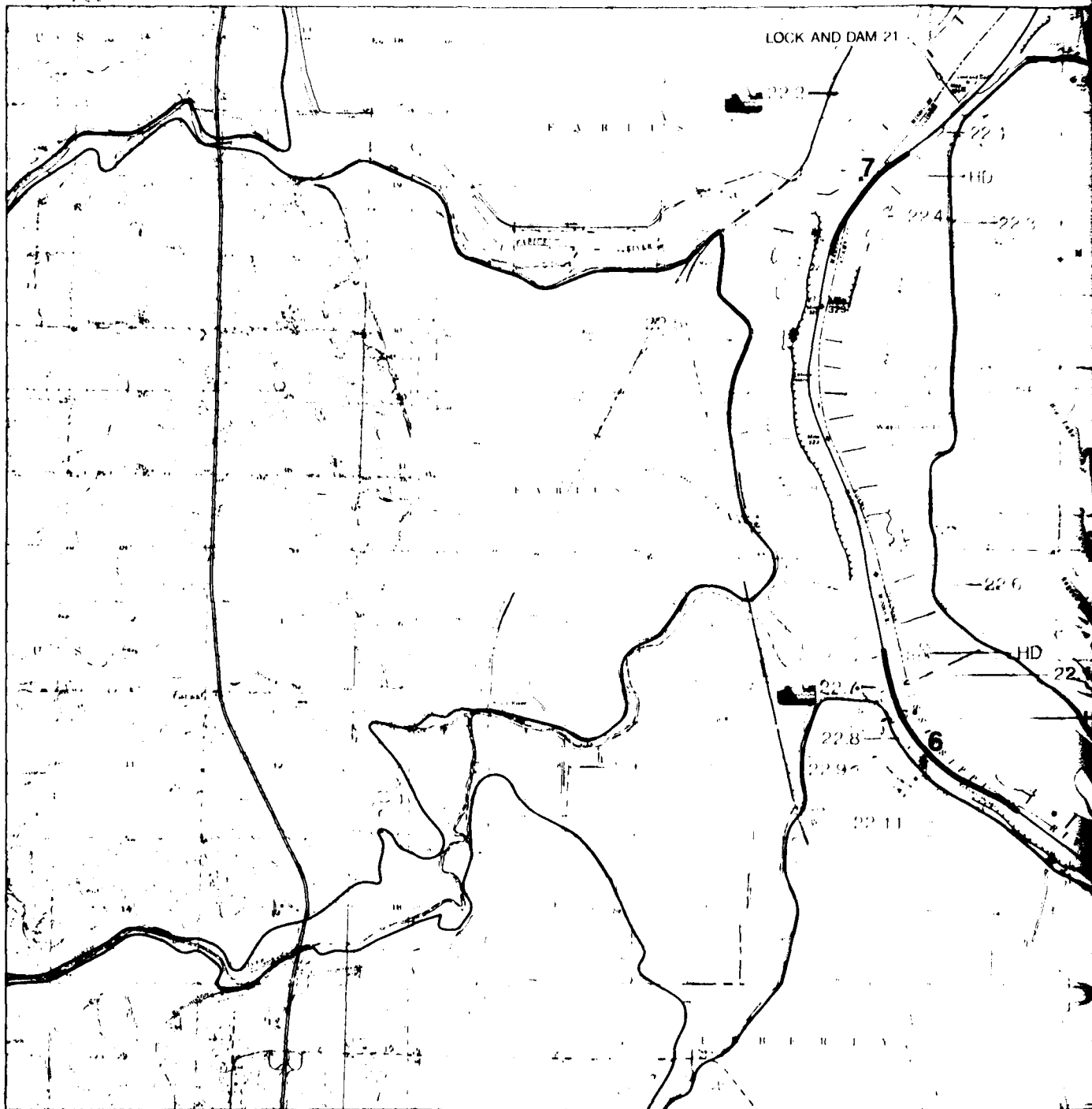


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM  
UPPER MISSISSIPPI RIVER (GREAT II)**  
(POOL 22 — LOCK AND DAM 21 TO MILE 318)

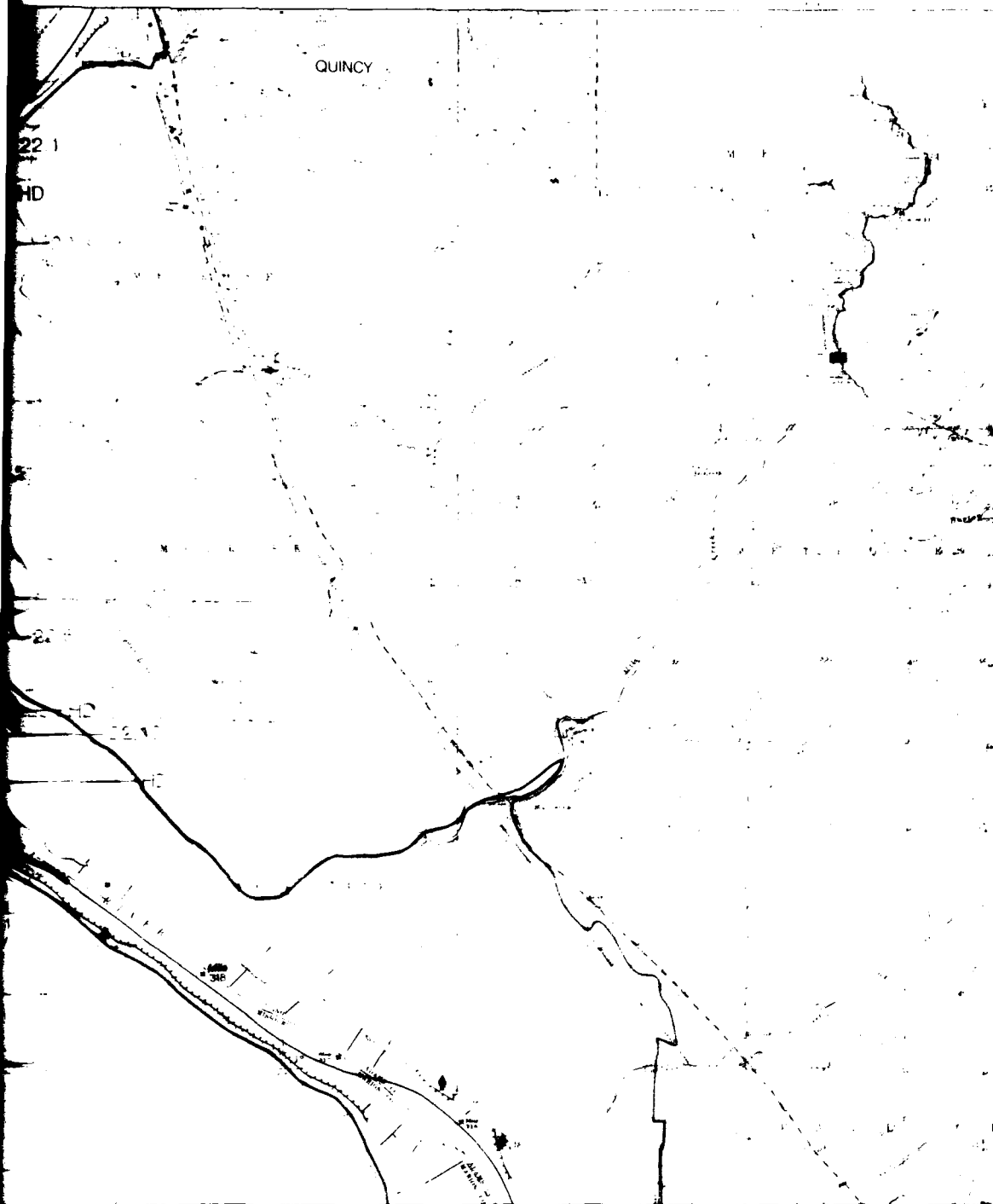


DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
	#6	N.E. RECAUTION DAM	22.25	10,000 cu yd
	#7	1/2 MI DAM PROJECT	22.50	10,000 cu yd

0 1/4 1/2  
MILES

*P*

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 22 - MODULE 1)



UPPER  
MISSISSIPPI  
RIVER

**22**

module 1



# LEGEND

5

DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52

PRIMARY DISPOSAL SITE



17.3\*

PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE

(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA

LOCATION OF WING DAM

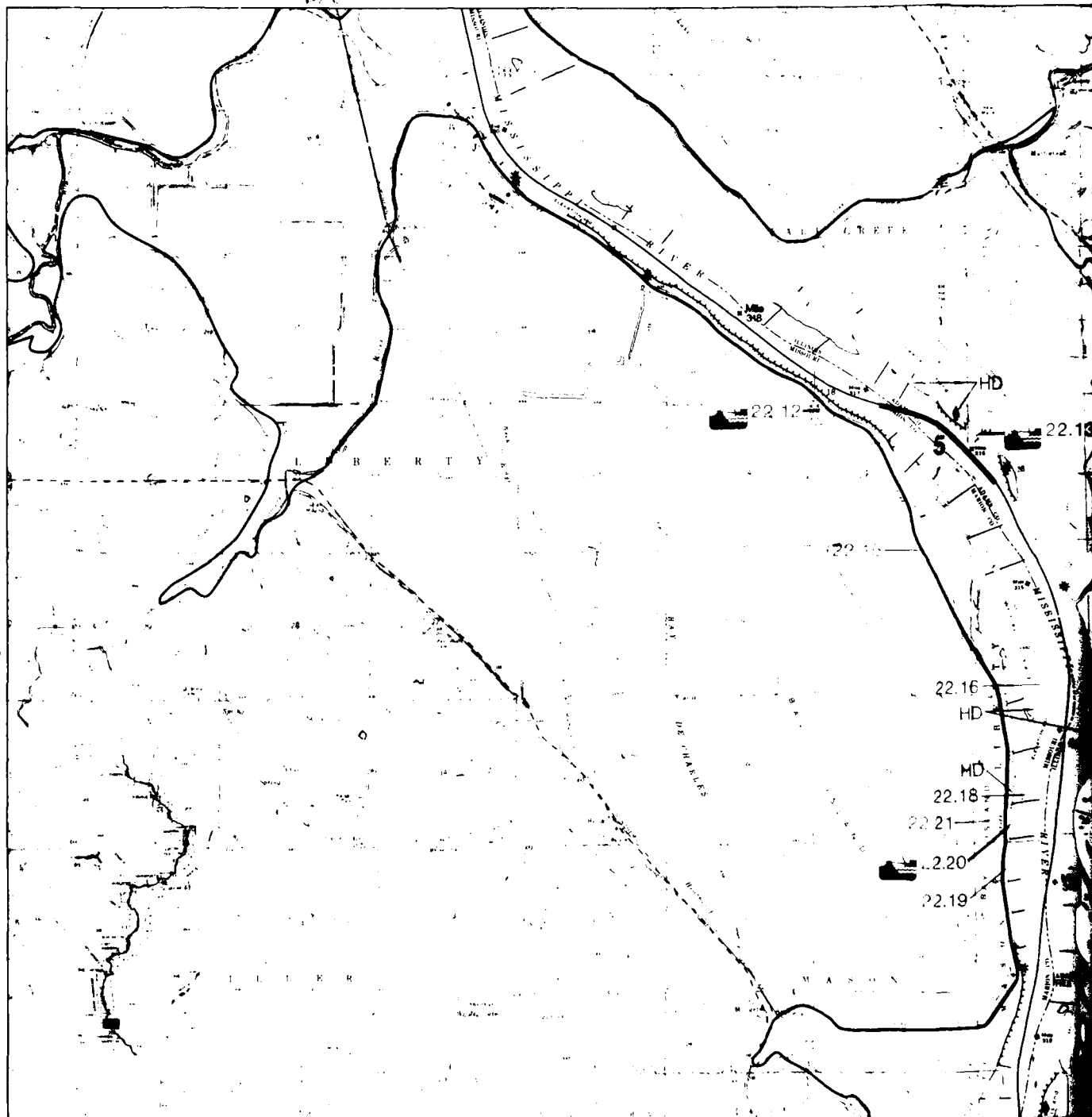


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
(POL 22 — MILE 318 TO MILE 313)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
		RIN TAW	318.5000	25,000 cu

0 1/4 1/2  
MILES

2

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS

PAGE 22 - MODULE 2



UPPER  
MISSISSIPPI  
RIVER

22

Module 2

1/2 1 2 NORTH

1

3

AD-A096 443

ARMY ENGINEER DISTRICT ROCK ISLAND IL  
GREAT RIVER ENVIRONMENTAL ACTION TEAM (GREAT II), UPPER MISSISS--ETC(U  
DEC 80

F/G 13/2

UNCLASSIFIED

NL

404  
404



END

DATE

FILED

4-11

DTIC



# LEGEND



DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)



RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

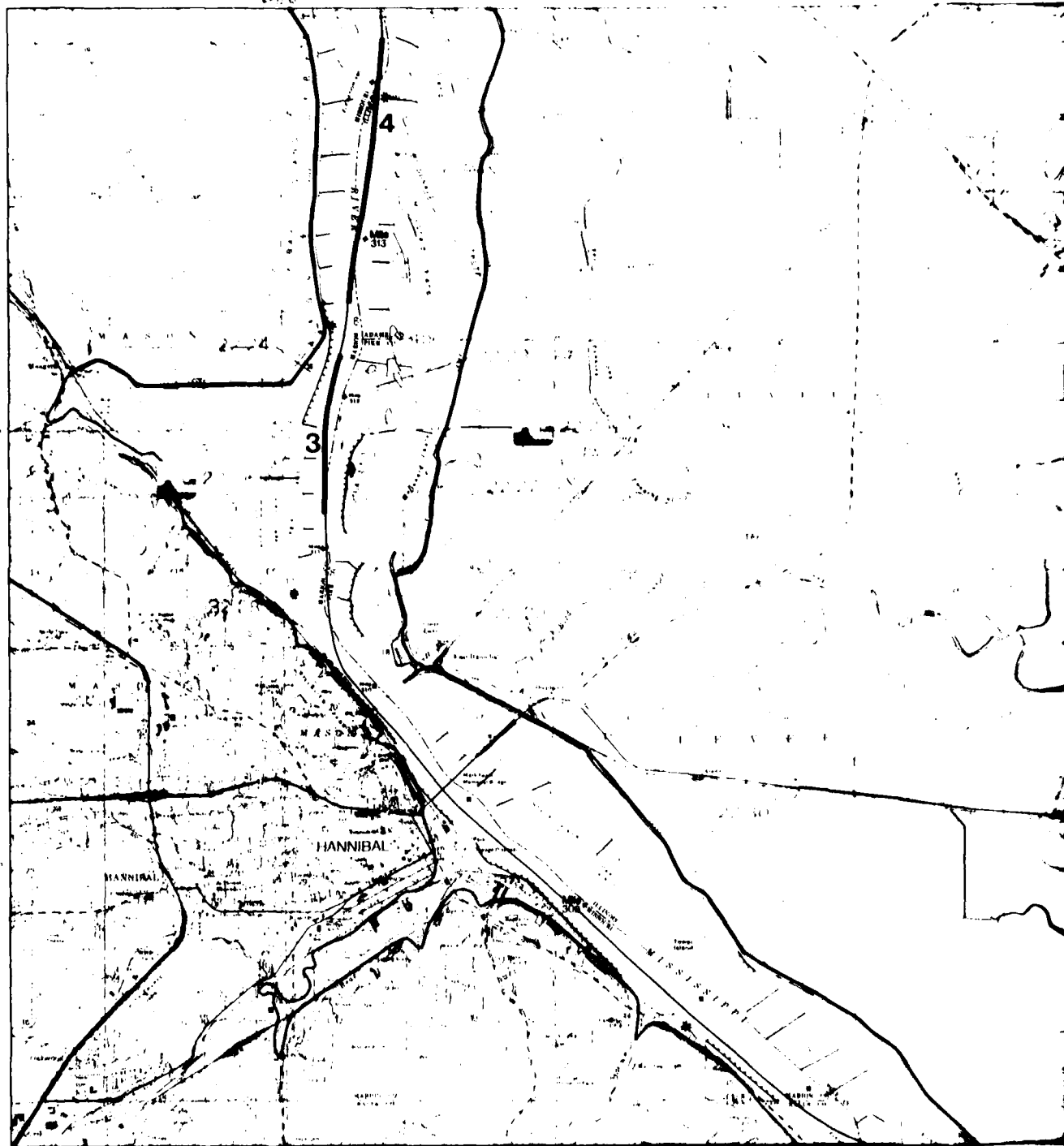


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

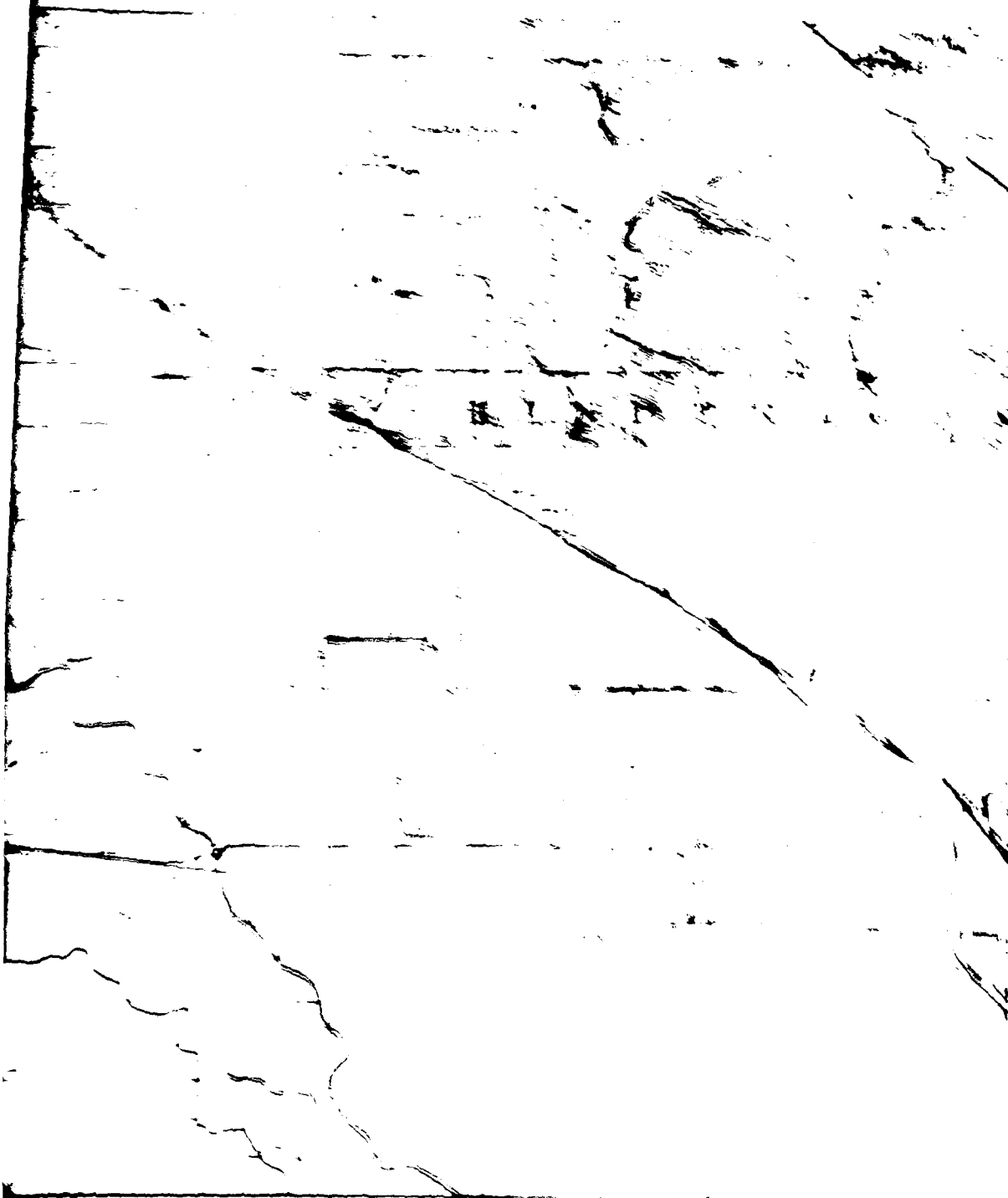
**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
 (POOL 22 - MILE 313 TO MILE 306)



DREDGE CUT DESCRIPTION	DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DITCH VOLUME
	#1	THREE LANE	11.500	10,000,000
	#2	WIDE LANE	11.500	10,000,000

0 10  
MILES

UPPER MISSISSIPPI RIVER  
SOUTH WEST OF ST. LOUIS  
MISSOURI



0 14 12  
MILES



UPPER  
MISSISSIPPI  
RIVER



22

Module 3

# LEGEND

5  


DREDGE CUT NUMBER  
DREDGE CUT LOCATION



14.52 PRIMARY DISPOSAL SITE



17.3\* PRIMARY DISPOSAL SITE  
BEACH NOURISHMENT ONLY

18.25

ALTERNATIVE DISPOSAL SITE

HD

UNNUMBERED HISTORIC DISPOSAL SITE  
(USED AS A DISPOSAL SITE ONE OR MORE TIMES SINCE 1938, BUT NOT CONSIDERED  
AS A DISPOSAL ALTERNATIVE BY THE GREAT II TEAM)

+ MILE  
587

RIVER MILE LOCATION



100 YEAR INTERMEDIATE REGIONAL FLOOD BOUNDARY  
(AS DETERMINED FROM FLOOD PRONE AREAS MAP DEVELOPED BY GREAT II)



LOCATION OF RIVER-BANK PROTECTION AREA



LOCATION OF WING DAM

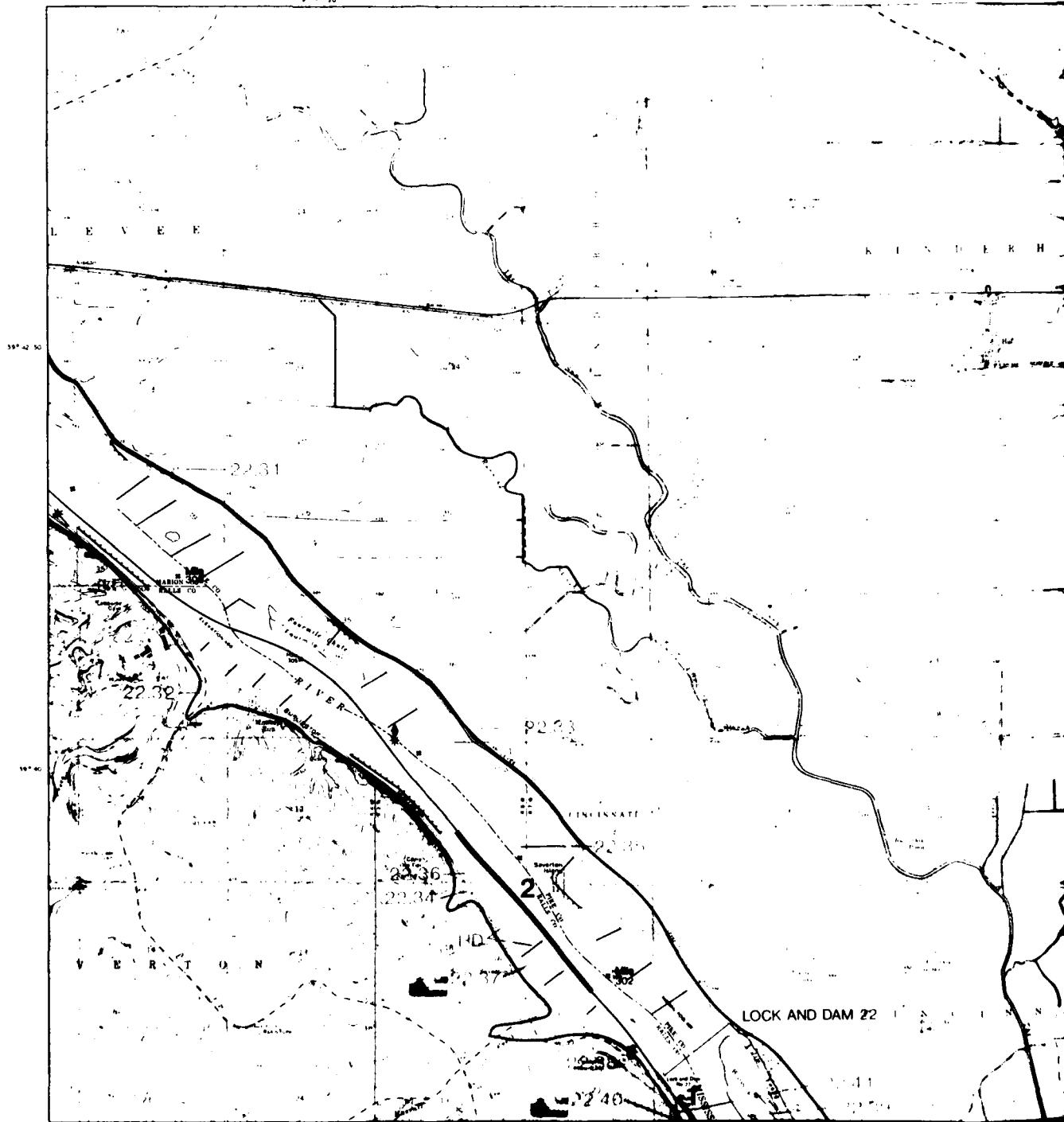


MID-CHANNEL SAILING LINE



NAVIGATION CHANNEL MARKERS

**GREAT RIVER ENVIRONMENTAL ACTION TEAM**  
**UPPER MISSISSIPPI RIVER (GREAT II)**  
 (POOL 22 — MILE 306 TO LOCK AND DAM 22)

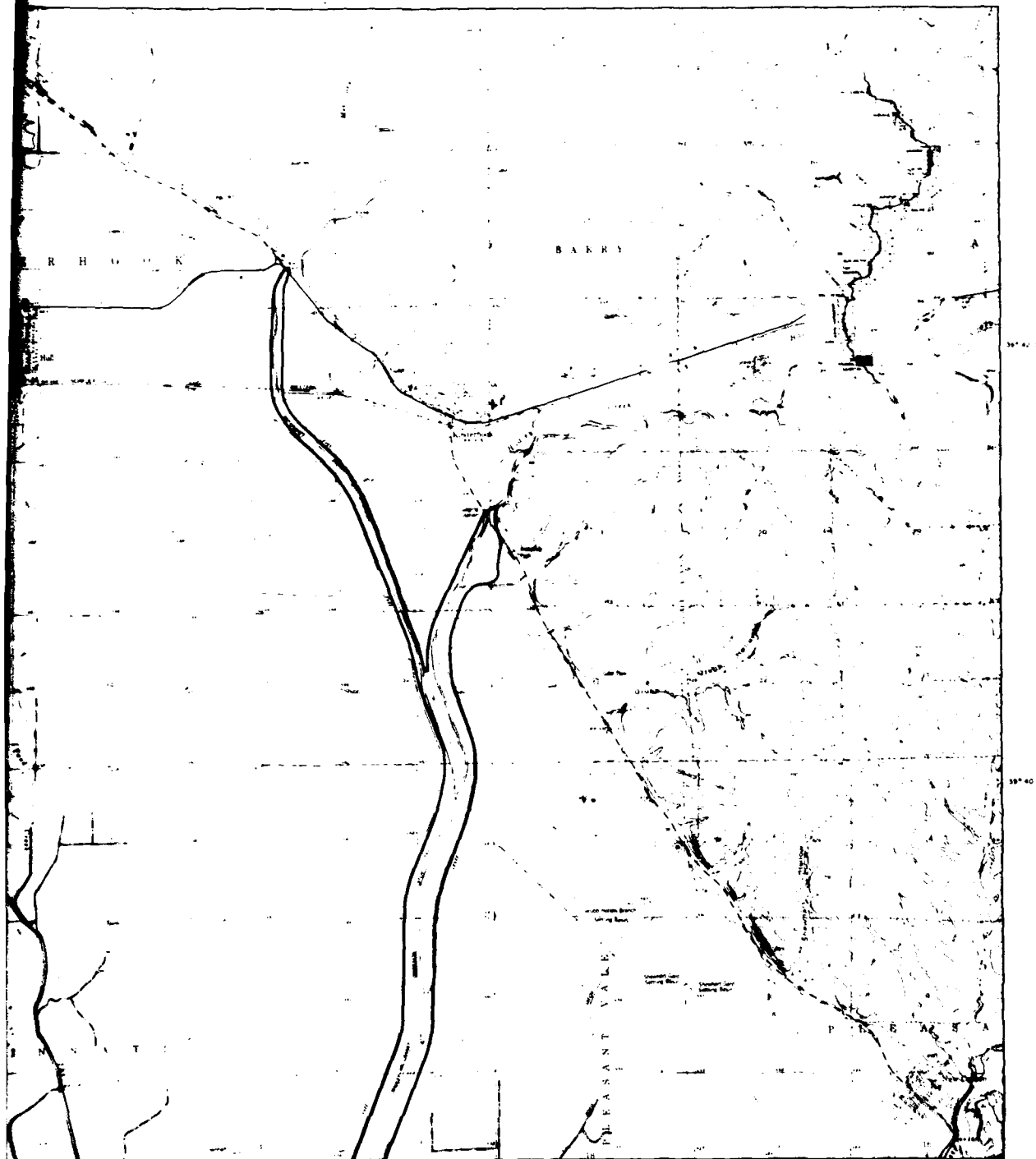


**DREDGE CUT DESCRIPTION**

DREDGE CUT	DREDGE CUT NAME	RIVER MILE LOCATION	PROJECTED 50 YR DREDGE VOLUME
#1	L/D 22 LOWER APPROACH	MILE 306	7,000,000 cu yd
#2	JACKSON	MILE 307	2,000,000 cu yd

0  
MILES

UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL ATLAS  
(POOL 22 — MODULE 4)



0 1/4 1/2 1 2  
MILES



UPPER  
MISSISSIPPI  
RIVER

22  
Module 4

EXHIBIT 4

SAMPLE  
PRE-DISPOSAL EVALUATION FORM

GREAT RIVER ENVIRONMENTAL ACTION TEAM

PRE-

DREDGED MATERIAL DISPOSAL PLACEMENT AND SITE

EVALUATION FORM

NOTE: This pre-evaluation form should be completed by the Corps of Engineers in cooperation with the On-Site Inspection Team (OSIT) at the on-site meeting(s) for each dredging project. Upon completion, it will be sent to the Chairman of the OSIT and filed with the Rock Island District Operations Division. A copy will be sent to the On-Going River Resource Management Team (ORRMT).

I.

A. Dredging Site Information:

Name of Site \_\_\_\_\_

Pool and River Mile \_\_\_\_\_

B. Notification-Site Specific:

(Detailed dredging notice) Date \_\_\_\_\_

C. Corps of Engineers Proposals:

Projected Dredging Depth \_\_\_\_\_ Width \_\_\_\_\_ Volume \_\_\_\_\_

D. Dredging Methods and Equipment Available \_\_\_\_\_

II. On-Site Inspection:

A. Meeting Date \_\_\_\_\_, Date Scheduled \_\_\_\_\_

B. On-Site Team Members for this Site:

<u>Agencies</u>	<u>Voting Member on Site</u>
State of Illinois	_____
State of Iowa	_____
State of Missouri	_____
State of Wisconsin	_____
U.S. Army Corps of Engineers	_____
U.S. Fish and Wildlife Service	_____
U.S. Environmental Protection Agency	_____
U.S. Department of Transportation	_____
U.S. Soil Conservation Service	_____



III. Disposal Sites Considered:

A. Primary Site (if not available explain why not and go to B):

1. Site Name \_\_\_\_\_
2. River Mile (Bank) \_\_\_\_\_
3. Owner \_\_\_\_\_
4. Acquisition Requirements \_\_\_\_\_
5. Acreage Required for Disposal \_\_\_\_\_
6. Beneficial Use Available:
  - a. Users \_\_\_\_\_
  - b. Have users been contacted? Yes \_\_\_\_\_ No \_\_\_\_\_
  - c. Volume that can be put to beneficial use \_\_\_\_\_
  - d. Special requirements \_\_\_\_\_
  - e. Economic evaluation \_\_\_\_\_
7. Habitat Impacts:
  - a. Types affected and approximate acreage \_\_\_\_\_  
\_\_\_\_\_
  - b. Special or unique resources present \_\_\_\_\_  
\_\_\_\_\_
  - c. Probable impacts on terrestrial resources \_\_\_\_\_  
\_\_\_\_\_
  - d. Probable impacts on aquatic resources \_\_\_\_\_  
\_\_\_\_\_
  - e. Habitat units lost or gained \_\_\_\_\_
  - f. Mitigation requirements \_\_\_\_\_
8. Recreation Evaluation:
  - a. Present use \_\_\_\_\_
  - b. Potential use \_\_\_\_\_

8. c. Beach nourishment requirements \_\_\_\_\_

d. Impacts of disposal (beneficial and adverse) \_\_\_\_\_

9. Proposed Dredging Method:

a. Dredge to be used \_\_\_\_\_

b. Booster pump \_\_\_\_\_

c. Double pumping \_\_\_\_\_

d. Barging \_\_\_\_\_

e. Other \_\_\_\_\_

f. Cost estimate \_\_\_\_\_

10. Primary Site Plan Developed and Acceptable (if yes go to Section IV - if not explain in detail and proceed with 11):

11. Preparation Requirements (include topography, floodway location and sketch including dimensions, scale registered photographs, etc.): \_\_\_\_\_

12. Post-Disposal Requirements:

a. Beneficial use \_\_\_\_\_

b. Mitigation (include detailed site plan and estimate of HU gain): \_\_\_\_\_

c. Erosion control \_\_\_\_\_

d. Cost estimate \_\_\_\_\_

B. Alternate #1

1. Site Name \_\_\_\_\_
2. River Mile (Bank) \_\_\_\_\_
3. Owner \_\_\_\_\_
4. Acquisition Requirements \_\_\_\_\_
5. Acreage Required for Disposal \_\_\_\_\_
6. Beneficial Use Available:
  - a. Users \_\_\_\_\_
  - b. Have users been contacted? Yes \_\_\_\_\_ No \_\_\_\_\_
  - c. Volume that can be put to beneficial use \_\_\_\_\_
  - d. Special requirements \_\_\_\_\_
  - e. Economic evaluation \_\_\_\_\_
7. Habitat Impacts:
  - a. Types affected and approximate acreage \_\_\_\_\_  
\_\_\_\_\_
  - b. Special or unique resources present \_\_\_\_\_  
\_\_\_\_\_
  - c. Probable impacts on terrestrial resources \_\_\_\_\_  
\_\_\_\_\_
  - d. Probable impacts on aquatic resources \_\_\_\_\_  
\_\_\_\_\_
  - e. Habitat units lost or gained \_\_\_\_\_
  - f. Mitigation requirements \_\_\_\_\_
8. Recreation Evaluation:
  - a. Present use \_\_\_\_\_
  - b. Potential use \_\_\_\_\_

8. c. Beach nourishment requirements \_\_\_\_\_  
\_\_\_\_\_
- d. Impacts of disposal (beneficial and adverse) \_\_\_\_\_  
\_\_\_\_\_
9. Proposed Dredging Method:
- a. Dredge to be used \_\_\_\_\_
  - b. Booster pump \_\_\_\_\_
  - c. Double pumping \_\_\_\_\_
  - d. Barging \_\_\_\_\_
  - e. Other \_\_\_\_\_
  - f. Cost estimate \_\_\_\_\_
10. Preparation Requirements (include topography, floodway location and sketch including dimensions, scale registered photographs, etc.): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
11. Post-Disposal Requirements:
- a. Beneficial use \_\_\_\_\_
  - b. Mitigation (include detailed site plan and estimate of HU gain): \_\_\_\_\_  
\_\_\_\_\_
  - c. Erosion control \_\_\_\_\_
  - d. Cost estimate \_\_\_\_\_

C. Alternate #2

1. Site Name \_\_\_\_\_
2. River Mile (Bank) \_\_\_\_\_
3. Owner \_\_\_\_\_
4. Acquisition Requirements \_\_\_\_\_
5. Acreage Required for Disposal \_\_\_\_\_
6. Beneficial Use Available:
  - a. Users \_\_\_\_\_
  - b. Have users been contacted? Yes \_\_\_\_\_ No \_\_\_\_\_
  - c. Volume that can be put to beneficial use \_\_\_\_\_
  - d. Special requirements \_\_\_\_\_
  - e. Economic evaluation \_\_\_\_\_
7. Habitat Impacts:
  - a. Types affected and approximate acreage \_\_\_\_\_  
\_\_\_\_\_
  - b. Special or unique resources present \_\_\_\_\_  
\_\_\_\_\_
  - c. Probable impacts on terrestrial resources \_\_\_\_\_  
\_\_\_\_\_
  - d. Probable impacts on aquatic resources \_\_\_\_\_  
\_\_\_\_\_
  - e. Habitat units lost or gained \_\_\_\_\_
  - f. Mitigation requirements \_\_\_\_\_
8. Recreation Evaluation:
  - a. Present use \_\_\_\_\_
  - b. Potential use \_\_\_\_\_

8. c. Beach nourishment requirements \_\_\_\_\_  
\_\_\_\_\_
- d. Impacts of disposal (beneficial and adverse) \_\_\_\_\_  
\_\_\_\_\_
9. Proposed Dredging Method:
- a. Dredge to be used \_\_\_\_\_
- b. Booster pump \_\_\_\_\_
- c. Double pumping \_\_\_\_\_
- d. Barging \_\_\_\_\_
- e. Other \_\_\_\_\_
- f. Cost estimate \_\_\_\_\_
10. Preparation Requirements (include topography, floodway location and sketch including dimensions, scale registered photographs, etc.): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
11. Post-Disposal Requirements:
- a. Beneficial use \_\_\_\_\_
- b. Mitigation (include detailed site plan and estimate of HU gain): \_\_\_\_\_  
\_\_\_\_\_
- c. Erosion control \_\_\_\_\_
- d. Cost estimate \_\_\_\_\_

IV. Alternative to be Implemented:

V. Conflicts:

VI. Viewpoints Other than OSIT:

EXHIBIT 5

POST DISPOSAL EVALUATION FORMS



GREAT RIVER ENVIRONMENTAL ACTION TEAM

POST

DREDGED MATERIAL DISPOSAL PLACEMENT AND SITE

EVALUATION FORM

NOTE: This post-evaluation form should be completed by the On-Site Inspection Team (OSIT). The completed form should be submitted to the ORRMT no later than 60 days after the dredging season has been completed. The following format should be used for each disposal site.

- I. Dredging Inspection and Post Dredging Evaluation (to be completed for each disposal site:

Location of Dredged Material:

(River mile, right or left descending bank, county, state)

- A. Corps Attempted to Minimize Dredge Material Volume: Yes\_\_\_ No\_\_\_

Final Volume \_\_\_\_\_

If Yes, by what means?

- B. Dredge Material Was Put to Beneficial Use: Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes, how?

- C. Corps Attempted to Follow GREAT Recommendations By:

- D. Actual Dredging Costs:

- E. Water Quality Evaluation:

- F. Mitigation Evaluation:

II. Evaluation of Compliance with Recommendations of On-Site Inspection Team:

III. Post Disposal Photos Attached (aerial and on-site):

Photos are to be registered:

IV. Future Recommendations: